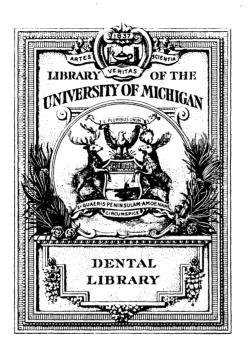
AMERICAN
DENTAL
JOURNAL
5
1906









PUBLISHED ON THE FIRST OF EVERY MONTH

VOL. 5				OCTOBER, 1906.								No. 10	
								ENTS	S .				
	sive Cour	se of	Pra	actic	al In	stru	ction	١.					
	hodontia,												
•	By J. N.	McDo	OWEL	l, D). D.	S.,	-	-	-	-	-	-	559
Pro	sthetic Der	•	,										
	By B. J. 6	Cigrai	nd, I	B. S.	, M.	S., I). D.	S.,	-	-	-	-	£64
Der	ıtal Therag	•	•										
	By George			t, B.	S., I). D.	S.,	-	-	-	-	-	569
Ope	rative Der	•	•										
	By R. B.	Tulle	r, D	D.	S.,	-	-	-	-	-	-	-	576
Origina	l Contribu	itions											
Too	thsome To	pics,											
	By R. B.				S.,	-	-	-	-	-	-	-	580
Son	noforme .	Anestl	hesia	ι,									
	By C. M.	Poste	n, D	. D.	S.,	-	-	-	-	-	-	-	584
Oze	na,												
	By E. P. 1	Hitcho	ock,	M.	D.,	-	-	-	-	-	-	-	587
Abstrac	ts and Se	lectio	ns.										
The	Antrum o	of Hig	ghmo	ore,									
	By G. S. 1	L'Esti	RANG	E, F.	. R. C	C. S.,	Irela	and,	- '	-	-	-	588
Res	pect for th	ie Es	sayis	t,									
	By HERM.	an P	RINZ	,	-	-	-	-	-	-	-	-	598
The	Necessity	of G	reat	er I1	ntellig	gence	in	Perfo	rming	g Der	ıtal (Op-	
	ations,												
	By C. N.	John	son,	M.	A., I	. D.	S., 1	D. D.	Ŝ .,	-	-	-	600
Per	fect Retent	tion o	f Go	old I	nlays	,							
	By Dr. A	A. H.	FLE	ммі	NG,	-	-	-	-	-	-	-	608
Bet	ter Manag	ement	of	Con	venti	ons,							
	By Dr. J.				_	_	-	-	_	-	-	_	607
Meeting	-	_	_	-		-	_	_	-	_	-	-	609
Miscella	aneous,		-	-	_	-	-	-	-	-	-	-	613
	al and Ge	neral	,	-	-	-	-	-	_	-	-	-	61
Illustra	ted Patent	ts,	_	-	-	-	_	-	-	_	-	-	618
Want A		•	_	_	_	-	_	_	-	-	-	61	9-620
	o Adverti	gerg		_	_	_	_	_	_	_	_	_	62

LISTERINE

The best antiseptic for a dentist's prescription

1881+25=1906

A fourth of a century of continued, satisfactory employment of Listerine has demonstrated to many practitioners that Listerine is the best antiseptic to prescribe for daily use by the patient in the care and preservation of the teeth. The mild, stimulating effect of the free boric acid radical in Listerine is of the highest importance in maintaining a healthy equilibrium of the fluids of the oral cavity. At best, alkalies simply temporarily neutralize the acid-forming ferments which the carbohydrates of food produce in the mouth,—a true antiseptic prevents that fermentative change.

Literature will be forwarded upon request, containing a brief résumé of recent bacteriological investigations supporting the above argument.

Lambert Pharmacal Co.

St. Louis, U. S. A.



ORTHODONTIA.

BY J. N. M'DOWELL, D. D. S.,
PROFESSOR OF ORTHODONTIA, COLLEGE OF DENTISTRY, UNIVERSITY OF
ILLINOIS.

CHAPTER XVII.

TRANSITION OF THE OCCLUSION OR SO-CALLED JUMPING THE BITE—DEDUCTIONS—TREATMENT—POSSIBLE AGE—PROBABLE AGE—

IMPOSSIBLE AGE.

Two of the most complicated conditions to be dealt with in the treatment of malocclusion are known as protrusion and retrusion of

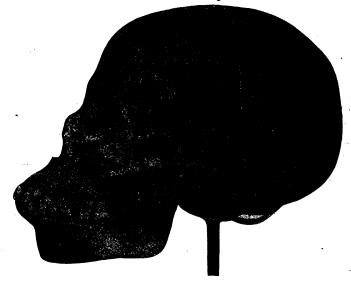


Fig. 1.

the lower jaw. This is a subject that is usually avoided by most authors, owing to the diversity of opinion regarding the movement of

the lower jaw with mechanical assistance. However, the author, after many experiments in dissecting the glenoid fossa and accomplishing many successful results upon practical cases, presents the following data under which the conditions for movement of the lower maxilla, favorable and unfavorable, are considered.

As the upper maxilla is stationary, all deductions for mesial or distal occlusion must be made from the contact of the teeth in the lower jaw with that of the upper. When the lower jaw has receded or protruded to a position when, in closing the teeth together, the contact of the lower teeth with the upper is mesial or distal, at least, one sloping plane, we then have a complete change in the occlusional contact of the teeth, establishing a condition known as retrusion or protrusion of the lower jaw. The term "prognathism" is a misnomer

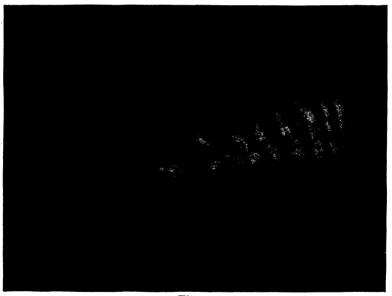
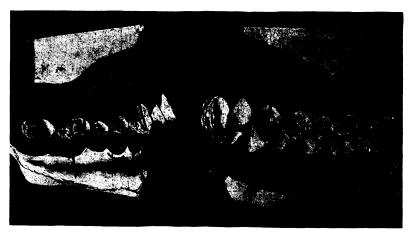


Fig. 2.

and should never be applied to protrusion of the lower jaw or the protrusion of the upper teeth except in the sense of comparison. Prognathism means the protrusion of the whole lower part of the face, involving both the upper and lower maxillary bones, the teeth being in normal occlusion, as illustrated by Fig. 1. It is the development

and position of the maxillary bones that create true prognathism, not malocclusion of the teeth.

Nature intended that man should be endowed with 32 teeth, 16 above and 16 below. Any variation from this number in either arch



A Fig. 3.



A Fig. 4. 3

by missing teeth, or extra teeth, causes an inharmonious relation to exist between the arches. If all of the teeth are in the arches (according to age) when the jaws are closed, the lower first bicuspid occludes between the upper cuspid and first bicuspid; and the lower second bicuspid occludes between the upper first and second bicuspids and so on. Normal occlusion is shown in Fig. 2.

Normal occlusion is the standard to work for and to work from. Every change from this normal contact to mesial or distal occlusion modifies the harmonious relation of the arches and often mars the facial appearance. When the terms distal or mesial occlusion are used, it signifies that it includes the contact of all of the teeth present unless otherwise specified by name and position, as in distal or lingual occlusion of the upper anterior teeth, etc.

To have distal occlusion, the bite *must* be backward from the normal contact at least the width of one sloping plane. A, Fig. 3. B, Fig. 4 illustrates mesial occlusion.

If it is only to the point of the slope it may be held upon the apex of the cusps, a condition that would not remain very long. Stress in



Fig. 5.

mastication would soon change the bite to mesial or distal occlusion to the most comfortable contact.

A condition, as illustrated by A, Fig. 4, is often taken for protrusion of the lower jaw, the deductions made from the general appearance alone. On examination we find that the condition is limited to the upper anterior teeth, they being in lingual occlusion, while the anterior teeth are in lingual the molars are in normal occlusion on both sides, which limits the treatment to the movement of the upper anterior teeth.

The treatment for protrusion or retrusion would be first (at proper age), to change the occlusion of the teeth of the lower jaw from mesial occlusion or distal occlusion to normal by movement of the lower jaw, restoring normal occlusion and the facial outline. Second, when not suitable age or when the teeth are not all present (loss by extraction, etc.), improve the occlusion contact and the facial outline. In the treatment of retrusion or protrusion of the lower jaw, there are three conditions for consideration: (1) The Possible age; (2) the Probable age; and (3) the Impossible age.

THE POSSIBLE AGE FOR TREATMENT OF THE OCCLUSION.

As transition of the teeth from the normal to the abnormal usually begins with the eruption of the permanent teeth, and becomes permanently established by the time the age of 14 years is reached, the possible time for treatment would be between the age of eruption of the temporary teeth and the conclusion of the eruption of the second molars about the age of 14 years. As all of the permanent teeth that are of practical service to man erupt between the ages of 6 and 14 years, all forms of malocclusion are then concentrated into the eight years that exist between the ages of 6 and 14. If it is possible for changes readily to take place at this time of life, it is possible, then, with mechanical force, to restore the condition to normal before it becomes permanent by osseous changes.

As transition of the occlusion by the movement of the lower jaw at first involves exclusively a change in the glenoid fossa (followed perhaps by some modification in the maxillary bone), consideration of the shape, development and changes that take place at this point is necessary. The probable causes of retrusion or protrusion are not definitely known, for the condition may be established by extraction, habits, mouth breathing or neurotic conditions.

(To be continued.)

DENTAL PROSTHESIS.

BY B. J. CIGRAND, B. S., M. S., D. D. S.,

PROFESSOR OF PROSTHETIC DENTISTRY AND TECHNIQUE, COLLEGE OF DENTISTRY, UNIVERSITY OF ILLINOIS.

CHAPTER XXXIX.

In conjunction with the knowledge of the muscular tissues of the external or facial relations, the prosthesist is keenly interested in the soft tissues and organs in the oral cavity.

The fact that the general system is under consideration should not lead to the inference that as practitioners we should forego the privilege or duty of giving the matter thought, nor should it foster the idea that we are usurping beyond dental limitations. As time goes on it becomes more apparent that our professional duties indicate that we concern ourselves more diligently with every phase of human disorder induced or provoked by any dental disturbance. This may seem a rather broad definition of our calling, yet our service is limited by legal rather than by physiological laws.

Our profession would at this day and age receive greater consideration could we impress the public with the fact that our services are truly important, and that organic and functional disorders throughout the human system can be directly traced to abnormal or disorganized oral conditions. I know of no method, policy, plan or purpose which would more engender public respect than the one calculated to educate the masses to a realization of the broad and far-reaching influence our services may have upon the general health of the person.

Possibly the most interesting theme of all life is the subject of cell physiology, and the possibilities which this kentniss possesses is far beyond the ability of the human mind to describe. If we thoroughly understood the single cell, all living bodies with their wonderful complexities would soon resolve themselves into plain and easily understood objects. The recent experiments of Prof. Robert Hamilton tend to prove the existence in every highly organized development of two lives, the one a life resident in every atom of the structure, the other the unity of all these atomic lives—a life for which we have failed to find an expression. Notwithstanding that the atomic lives are subordinated by the grand or central life, the latter is dependent

on the atomic energy, and a co-existence is established which science has yet to solve.

Just as each atom contributes to the entirety, so every fiber contributes to the organ, and in turn every organ donates to the perfected whole. And in the same ratio the entire organism depends on the parts or subordinaries. Every fiber in animal life is subject to development or decadence. The progression or retrogression is dormant or alive according to its size or importance. In animal life activity and development are synonymous terms, while disuse and waste are similar words.

Nature despises disuse. She has a standing resolution which reads, "The idle and unused shall be cast off," and this applies to the teeth, which, allow me to say, are no exception to this edict. If you were to have your right hand bound close to your chest and it were to remain so for a period of one year, you would not be able to control it upon emancipation. Use and development have come to mean the same, and nature furnishes an example in the sightless fish at the Mammoth Cave, Kentucky. Nature says, Why have these eyes, when they are not used? Atrophy in nature, as in political life, means waste and death: as in the whale the teeth are embedded or incased in the jaw and never crupt; the whale having no use for them, nature does not beget the teeth. All life testifies to the primordial law that what is not employed shall be gradually destroyed.

The general public in the cities have been inoculated by the virus known as haste, hustle and hurry. Their meals are eaten in five minutes, and only substances requiring little chewing are chosen from the bill of fare; and we have learned long since that the teeth need organic exercise.

Again, we overlook the necessity of jaw movement in the process of digestion. Foods which are "prepared," so called, require little mastication, and in taking them we can not guard against dyspepsia and kindred stomach disorders. The food must be left in the mouth sufficiently long to be saturated with saliva and to assure its liberal flow, the jaw must be set in motion. Oatmeal, and the various breakfast foods, do not require this, and the sucking or mere process of deglutition does not bring forth the saliva, and hence the proper action of the saliva is omitted, and this will have its ill results on the

effect and force of the food. We should choose such foods as will stimulate the flow of saliva and develop the glands and strengthen the secretions. Select foods which exercise the teeth. This stimulates the circulation in the peridental membrane and induces a quickened circulation in the tissues of the gingiva, and possibly wards against pyorrhea and other forms of diseases of waste.

The mere moving of the jaw as in speaking does not stimulate the glands sufficiently. Experiments which I have made have led me to conclude that the parotid and submaxillary glands are provoked into action by tension of the masseter muscles—that these muscles during their vigorous activity stimulate these glands.

The mind exercises a powerful control over all atomic life, and the student of cell physiology, as well as the pupil of nature, need not go beyond their own bodies for a laboratorial or ocular demonstration.

One hears and reads much in these times of muscular and athletic development induced by exercise and mental influence. This can not be known as a new idea; the basic thought of this system can be found in a sentence by Darwin in his "Descent of Man," page 30, where he speaks of re-developing organs or nerve or muscular fibers as follows: "I have seen one man who could draw the whole ear forward; other men can draw it upward; another who could draw it backward. It is probable that most of us, by often touching our ears and thus directing our attention toward them, could recover some power of movement by repeated trials."

That the exercise of the jaws and mental direction changes the face I firmly believe. I have observed in patients who had suffered the loss of most of the teeth on one side of the mouth that the cheek was thinner and more flabby. I concluded that this was entirely due to the loss of the teeth, but I have come to believe that since the patient can not masticate where there are no teeth, the entire exercise is conducted on the side containing teeth. The additional work placed upon this side of the mouth develops the salivary glands doubly, while on the opposite side atrophy practically sets in, causing absorption and thinness of the cheek.

Again, nature has so arranged the salivary system that the glands will only respond on that side of the mouth where actual mastication is in progress, again proving that the glands excrete only under pressure. The sucking or mere swallowing, as is done in eating

soup and soft foods, does not beget a free or full flow; movement of the jaw is not sufficient; it requires pressure. The jaws must be forcefully brought into antagonism and thus produce an effect on these glands. Besides the action of the jaw, the mind should exert its influence upon both jaw and glands. The effect of mind over body is well and most easily demonstrated regarding oral secretions and flow of buccal mucus. Mental exertions exert a control over its flow, sometimes diminishing it as in moments of great anxiety. Its flow is often completely stopped by fear, while suggestion increases it and not infrequently induces an abundance of the watery fluid.

The saliva has many functions. It is a necessary intermedium in the sense of taste; substances to be sapid must be more or less soluble in this juice; if insoluble, they are tasteless. It moistens the interior of the mouth, aiding the art of speech. But, chiefly, it promotes the process of digestion, and with this latter fact we should be more concerned, since its flow is, I believe, controlled by the activity of the jaw-I do not mean by mere jaw movement, but jaw action. Nature requires that the food shall be crushed and pulverized by the teeth, and softened and chemically changed and prepared by the saliva, and when these two processes are accomplished, the food is ready for the stomach. The present prepared foods do not beget jaw action, hence I contend do not receive the proper amount of parotid saliva, and the foods lacking this pre-stomachic treatment must of necessity lack in the blood-producing elements. The mischief of this poorly prepared morsel may be one of the prevailing ailments of dyspeptics, and may also be conducive to the ravaging increase of consumption. Tuberculosis makes great headway in any system that is exhausted; in any person whose vitality is low; in any individual whose energy is lessened through impoverishment of blood. The action of the jaw being omitted, the flow of the parotid saliva is scant, the food morsel improperly prepared, digestion disturbed, the blood impoverished, and hence, with the lack of organic and systemic energy, tuberculosis, pyemia and all consuming diseases readily progress. All this destruction of human life has been aided, not induced, by disregard of the cardinal principle of digestion, by our present methods of hasty eating, giving neither thought nor time to the process of manducation and mastication—the human or civilized species disregarding nature's greatest and most divine requirement, histongenetic digestion.

case recently brought to my attention may be of interest in this direction: A young lady patient who sustained an injury to the temporo-mandibular articulation, resulting in positive immobility of the jaw and in her being obliged to exist on liquid food, gave evidence of the immediate effect of jaw and dental exercise in that her teeth loosened and the parotid saliva practically ceased flowing, her health soon disappearing.

Men versed in the art and science of stock-raising will bear testimony that cattle, as well as swine, which are denied opportunities of vigorous jaw exercise soon lose the teeth and become diseased.

While pyorrhea alveolaris is classed as a disease, gomphiasis must be termed a physical condition that is sometimes noted in middleaged persons. Gomphiasis presents the same relation to the physical economy that gray hair does—being indicative of age—but not necessarily so. In gomphiasis the teeth are loose, they seldom present decay, and are of a cream yellow shade. There are no signs of alveolar absorption or the presence of waste product or pus. The teeth are generally long, and possess ill-shaped cusps; never bell-shaped, but rather of cubic outlines. My attention was directed to this abnormality something like twelve years ago. Gomphiasis is so akin in its manifestations to pyorrhea alveolaris that many practitioners make the mistake of treating it with medicines and instruments adapted to pyorrhea, and meeting with ill results are apt to pronounce it a stubborn case of gingivitis, and invariably recommend the extraction of all the teeth, substituting artificial ones, when it remained within the dental province to restore and save the natural dental organs. The extraction of teeth in such as case is entirely contra-indicated, inasmuch as appliances will give stability to the affected parts, and they will speedily yield and become normal in character. The abuse some dentists accord in case of this defect is astonishing. A healthy tooth submitted to such digging would induce a severe and distressing inflammation.

I have observed that cases of gomphiasis are mostly found in people of the lymphatic tempermanent and can not be termed an abnormal condition, inasmuch as the osseous structure of their being is of a less dense or firm nature. The gums are naturally flabby and the entire system is rather of a lower form.

(To be continued.)

PROGRESSIVE COURSE OF PRACTICAL INSTRUCTION. 569 DENTAL THERAPEUTICS.

BY GEORGE W. COOK, B. S., D. D. S., OHICAGO, ILL., DEAN OF DENTAL DEPARTMENT U. OF ILL.

PROFESSOR OF BACTERIOLOGY AND PATHOLOGY, UNIVERSITY OF ILLINOIS; PROFESSOR OF ORAL SURGERY, DEARBORN MEDICAL COLLEGE.

CHAPTER XXXVI.

Under the heading of heavy metals we have called attention to mercury and its various compounds, relative to their pharmacological action on living protoplasma. The next in order of classification would naturally fall to that of iron. However, it must be borne in mind that iron differs in many respects to that of any of the other heavy metals, in so far, as it seems to be essential to the physiological activity of many, if not all forms of protoplasma. In the higher forms of animal life its presence in the living organism is confined almost or quite to the hæmoglobin of the blood. However, its presence in other tissue is so important that it can not solely be ignored. In some of the lower forms of the animal kingdom the compounds of this metal is found in the tissue, principally in some other form to take place of that found in the hæmoglobin of the blood. Molisch has shown that it is one of the essential elements in the development of certain forms of vegetable life, and when its absence is apparent in some of the higher forms of plants they fail to produce chlorophyll, although it does not enter into combination with this last named substance as it does in the case of hæmoglobin of the blood of higher forms of animal life.

The combining power of iron with other elements is usually divided into two classes, the organic compounds of iron and the inorganic. The presence of either is easily detected in both forms by the addition of ammonium sulphide, which gives a black precipitate, or the blue precipitate with the addition of a ferrocyanide or the ferricyanide of potash. The principal compounds are the chlorides, acetates or sulphates, while the most characteristic organic compound of iron is the hæmoglobin, and is not always easily detected by many of the tests for iron. An attempt has been made to explain this on the grounds that the iron combined directly with the carbon of the molecule, thus making it necessary that when tests are made with

ammonium sulphide that it takes several hours for the reaction to take place. When such forms as the compound of iron is brought in contact with a solution of proteid, albuminate of iron is at once precipitated. According to the best authorities this is the form in which it exists in the living animal tissue. This at once demonstrates the fact that its presence in the animal tissue differs in many respects to that of mercury for it has been conclusively shown that when such compounds as the perchloride of iron has any detrimental effect upon the tissues it is due to the acid condition that is present when the perchloride of iron comes in contact with the solution. The albuminate of iron produces no floculent appearance as does the mercurial compound, in fact, it has a protective tendency to the tissue, for the corrosive action of iron is limited almost entirely to the surface of the tissue.

It has been observed that the double salts of iron, the albuminous compound or the so-called organic iron does not precipitate proteids, it therefore, can not be classed as an irritant or an astringent so long as they maintain their organic existence. They must, in order to bring about a detrimental action, be reduced to the simpler salts of iron.

The perchloride of iron when taken internally has an astringent, metallic or sometimes may give a decided acid taste. When taken in ordinary doses it has no further symptoms, but if administered in large quantities it gives an uneasy painful sensation in the stomach followed by nausea, vomiting and sometimes purging, with all the manifest symptoms of acute gastro-intestinal irritation. If this condition is prolonged for any great length of time a general weakness and collapse may follow. Up to the present time there has been no observations made that indicate there is any absorption of iron from the alimentary tract.

When any of the inorganic salts of iron is administered for a considerable length of time it is usually followed by dyspepsia, constipation and colic, which has been attributed to the astringent action of the iron compounds on the epithelial structure of the intestinal tract. Some of the conditions observed after the long administration of iron is the darkened condition around the necks of the teeth and a slight irritated condition of the gum tissue, which is attributed to the acid that is in combination with the iron. These compounds

coming in contact with the tissue immediately produces disassociation, the iron combining with the proteid substance forming the albuminate of iron, while the acid is set free in the tissue. reasoning is logical, however, for the simple fact that when these various solutions are taken through a glass tube or are prevented from coming in direct contact with the gingiva, the various compounds of iron can be administered for an indefinite period without producing these various manifestations on the mucous surface. dark discoloration that is produced on the surface of the teeth has been attributed to the tannic acid in the food stuff about the necks of the teeth, or to the hydrogen sulphide that is present in a carious condition of the teeth. Either one of these theories may, or may not, be The fact that various sulphur compounds are constantly present in mucus, it would naturally look that the latter theory was most likely the correct one, for the dark discoloration will appear on the surface of the teeth, while the mouth is perfectly free from dental caries. I tried a few experiments by taking ten c. c. and adding to that 1-100 of one per cent of the perchloride of iron and leaving a tooth in the solution for several days, to find that the cementum would become discolored. This might be said to be caused by the bacterial cell that was in the oral fluid, but it will be borne in mind that the sulphur must have been present, for the mouth was perfectly freed from all food stuff and the saliva responded to the test for sulphur.

It has been shown that there is a hyperacidity of the gastric juice of the stomach after the administration of the compounds of iron, and that inorganic compounds of iron will retard artificial digestion more than will the organic compounds, and that the ferric salts hinders digestion more than does ferrous. When iron is administered by the mouth it has but little, if any, effect on the excretions of the amount of double sulphates in the urine, consequently, it could not be looked upon as an intestinal antiseptic.

In order to obtain general symptoms of iron it will have to be by an intravenous injection of some form of the double salts, such as the sodium and tartrate of iron, which does not have any coagulating effect upon the blood and at the same time removes the ions of the iron in the tissues. When the ferrocyanide and the ferricyanide is administered in the same way they leave the body as such compounds. consequently, there is no breaking up or disassociating, therefore, no general symptoms are produced with these two last named compounds. The experiments of Williams and Meyer showed that the tartrate or double tartrates cause paralysis of the central nervous system in the frog without affecting the heart's action, if any, but the irritability of the muscular fibers were very much diminished. The examination after death revealed the fact that the mucous membrane of the stomach and intestines were swollen and congested, with the appearance of extravasation of blood on the surface of the mucous membrane. Kobert demonstrated that if the citrate of iron was injected in small quantities the kidneys became congested, casts and albumin would appear in the urine. According to this it would appear that iron in this particular acts as many of the heavy meals, inasmuch as it is a specific irritant to the gastric and intestinal mucous membrane, but that its effects upon the kidneys is very much less than that of many of the other heavy metals.

The early observation of the effects of iron was that it passed comparatively easy into the tissue and there formed the hæmoglobin of the blood. But for the last half century there has been considerable discussion as to its relative value in cases of anæmia and chlorosis. The benefits that seem to arise from the administration of the salts of iron in these diseases have come down through several generations of physicians, that it would seem quite empirical for any one to question its value in these diseases. However, Kletzinsky's observations upon this point expressed his belief that no benefits accrued from its administration in such diseases as above spoken of. His ideas were soon lost sight of until Bunge formulated a theory which afterward was known as Bunge's theory, which gained considerable popularity in later years, but has now been almost entirely abandoned, even by the author himself who claims that the salts of iron is not only absorbed, but increases the hæmoglobin of the blood.

Owing to the fact that tissues and organs of the body contain more or less iron makes it difficult to trace the iron in the body when administered in any quantity. It is estimated that from 40 to 55 grains is necessary for the healthy maintenance for the ordinary-sized human being, most of which is contained in the hæmoglobin of the blood. Various estimates have been made as to how much iron was taken in with food stuff. Stockman and Greig have shown that

from 1-12 to 1-6 of a grain is taken in with the ordinary diet, and that 1-20 to 1-12 of a grain is sufficient to maintain the iron equilibrium in the body, and that about the same quantity is eliminated to the various excretory channels of the body, but mainly through the feces. The main point in Bunge's theory that iron was not absorbed when administered in the form of an organic or inorganic compound, was, that the quantity in the urine was not increased. But this has been proven to be incorrect for it has been shown that when a double tartrate has been administered intravenous that only 2 to 5 per cent of the quantity injected is found in the excretions of the body, showing that the quantity has been stored up in the various tissues and organs of the body, principally in the liver, spleen and bone marrow.

We could discuss at considerable length the experiments and observations, the fate of iron in the tissues, suffice it to say that there is almost a certain amount of iron taken up and stored in the various organs and tissues when injected intravenous or taken by the stomach. The therapeutic value of iron seems to be principally in diseases known as anæmia or chlorosis. Many cases seem to recover entirely. while others will go for considerable time and again relapse. In these latter cases there is likely to exist a more severe form of anæmia. A number of the diseased conditions known as chlorosis are entirely cured by the administration of compound of iron, while its value in certain forms of anæmia is very much over-estimated. to have some value during the process of recovery from some of the acute infectious diseases like typhoid fever, nephritis and malaria. It is considered not advisable to administer iron in some forms of heart disease and to persons having hæmorrhagic tendencies. It has been considered that under certain circumstances it causes hemorrhage of the lungs in persons suffering from tuberculosis, but as to how correct such theory is is yet a question.

The prevailing idea formerly was that iron should be administered in large doses, but of late years its quantity as a dose has been diminished from 2 to 3 grains, three times a day, and the time of day for its administration is after the meal hour so to, as far as possible, prevent the irritation of the stomach. As we have previously said, iron is injected hypodermically in order that the astringent properties to the stomach will be avoided. A large number of the compounds

when injected hypodermically frequently is precipitated at the point of injection and one of the objectionable features to hypodermic injections is, that it causes painful swelling and produces considerable discomfort for some little time. According to Kobert's observations, this painful condition does not take place if the citrates are used in small quantities, and he considers that if pyro-phosphate and the citrate be used in 5 per cent solutions, that more beneficial effects can be obtained. This solution seems to readily pass into the circulating blood and does away with the disagreeable symptoms that are manifested in the hydrates and oxides, which have also been successfully used. It is claimed by some that the injection of peptonate of iron does away almost entirely with the irritating properties that is so common in the above named preparations.

Erysipelas was one of the diseases in which iron at one time gained considerable favor as a remedy, but the observations has later revealed the fact that it has but little, if any, value. The ferrous sulphate has been recommended in cases of diarrhea and for external use as an efficient astringent. But the perchloride, however, is looked upon as being the most valuable in cases of hemorrhage, for the simple fact that it precipitates the proteids in the plasma of the blood, causing an obstruction to the small blood vessels. minate of iron resembles in many respects an ordinary blood-clot, but differs in so far as there is no fibrin found in the mass of albuminate of iron. This styptic effect is valuable only where the bleeding comes from the capillary vessels. The chloride of iron has been recommended, but is considered to have but little value, except where it can come in direct contact with the bleeding surface. At the present time the perchloride has the preference in such cases as bleeding from the nose, or wounds from the extraction of a tooth. But the opinion of the best authorities is to the effect that its use in the case of hemorrhage from the stomach and intestines is of but little, if any, value.

Many attempts have been made to trace distribution of iron in the system, but the observations have not been of sufficient importance to record them here, suffice it to say that in local hemorrhages like those above mentioned, the perchloride has a valuable place. In chlorosis and anæmia the various compounds as above mentioned are no doubt of considerable value, and in these two diseases there are some oral difficulties in which the internal medical practitioner and

dentist should try to work together. As an illustration, I might mention here a case of a young lady, 18 years of age, who consulted me for some difficulty of the gums and the oral mucous mem-On examination I found a number of well-defined pockets extending well down into the alveolus, and on the slightest touch would cause pain and bleeding. I treated this case in the ordinary way and prescribed a mouth-wash, and recommended that she return to me again in the course of two weeks. On her return I found the gums, so far as their sensitiveness and bleeding condition, somewhat improved, but the pockets had not closed up in the way they should have if all the conditions had been favorable. I made a blood examination to find less than three million red blood corpuscles with an increased amount of leucocytes, with other pathological conditions of the blood. I was at once impressed with the fact that there was more than a local condition to deal with. I then recommended that she consult her physician, which she did, and he was very much surprised that I considered this other than a local difficulty. I had not told the patient or her mother of the condition of the blood, but said that I would like to talk with the doctor in regard to the case. A few days later the physician called me up and we discussed the conditions of the girl and he immediately began the administration of arsenic and iron, and in a course of a month I saw the girl's mouth again and found a decided improvement in the general oral condition. The young lady in the course of six months had quite recovered.

I might in this connection mention a very similar case, only the conditions of the oral cavity was very much worse, in fact, the young lady's general constitution was in a very much worse condition. I was called to see her by her physician in regard to her mouth, and much to my surprise many of the teeth were loose in the aveolus and seemed it would take but little force to remove them. Her mouth was put in as good condition as it could be at that time, for she was unable to leave her room; and no one would doubt the unsatisfactory manner of an operation for removing the calcific deposits and treating the pockets around teeth under such circumstances. However, the patient did not recover, and after some five months, she died. I saw her three weeks before her death and every tooth in her head was loose and many of the pockets around the teeth had to be packed with perchloride of iron, for there was almost a constant oozing of blood from around some one of the teeth.

(To be continued.)

OPERATIVE DENTISTRY.

Shop Talks.

BY R. B. TULLER, D. D. S.,

CLINICAL PROFESSOR OF OPERATIVE DENTISTRY, CHICAGO COLLEGE OF DENTAL SURGERY.

No. VIII.

SOME NEW FEATURES IN OPERATIVE WORK, CONTINUED.

In my last I gave the baking point of moldable porcelain as 1800°. This is according to Dr. F. E. Roache, who is the originator of this particular science, spending several years of research and experimental work; but others who have taken it up and also conducted many experiments with it, and who are experts, name 2000° F. as about the proper degree.

Unless one has an attachment to his furnace to indicate the degrees of heat, he can only guess at the temperature, and must be governed by his judgment after some experimenting.

In my own practice I do not go beyond the second step with this moldable substance, using a Hammond furnace; and on this step I have inadvertently left the piece in for several minutes beyond the time intended, without, so far as I could determine, any unfavorable results. Whether it reached 1800° or 2000° I do not know. At such high temperature a variation of 200° is hard to take note of by any visual observation of the oven. Baking a piece over and over several times, with some new material added does not seem to appreciably shrink it further or change the form if the temperature has not been raised materially.

One thing must be observed: that it is not safe to pick the piece out with pliers that pinch or press it, as in the fused state it is soft. Shut off the current and let it cool down until redness has disappeared.

Another feature is, that it will stick fast to sides or floor of oven or the slab it rests upon if precautions are not taken to avoid this; sprinkle well the surface it is to rest upon with grains of silex, and let piece rest on its cavity surface. The silex will adhere slightly, but the grains are easily dislodged without detriment to this surface. It leaves minute craters, but this only provides a better hold for the

cement. On exterior surfaces, of course, these craters are objectionable and can not be got rid of except by re-fusing with perhaps some fresh material added.

This bed of silex crystals in the furnace serves to preserve the form of the piece; since, when fused and soft, and especially if of some bulk, it might sag some without these many minute supports, as any other porcelain might, perhaps, in a semi-fluid state, were it not for the matrix that governs it.

In leaving this subject I would again emphasize the fact. or opinion at least, that moldable porcelain has an important place in prosthetic dentistry, and has come to stay. By its use the ready-made porcelain tooth fitted to a root comes as near to nature's handiwork as it is possible for the art of man to make it; and banded roots, except in some rare cases, will be a thing of the past before many years, except in some peculiar cases.

There is another porcelain being exploited, classed with the kind that requires a matrix, but which does away with a furnace or oven, being fused in the flame of an ordinary alcohol annealing lamp, and at the saving, too, of much time. In inlay work this would seem to fill a want among practitioners not supplied with furnaces.

This certainly is a low fusing body, but as to its merits as an inlay filling material in comparison with higher fusing, I am unable to state. From observations of clinical demonstrations, and test of the baked product as concerns density and strength, I was impressed that the substance and method of manipulation was worthy of thoroughly practical tests.

The substance is produced in a variety of shades, subject to blending on the part of the operator to produce most any other shade that might be required. Pure gold matrices only are required, though no doubt platinum may be used if desired. However, there is little danger of burning a gold matrix in such a low flame, though not invested as must be done with gold with low fusing bodies that go into the furnace, or a blow pipe flame.

Again, in the line of inlay work, or partaking more of cement work than inlay, we have what is called porcelain enamel. It is mixed up, a powder and liquid, very much as cement is, to a rather stiff dough, but not with a metal spatula. It begins to set with reasonable promptness, but not with the same sort of crystalization as

ordinary cement. It has more of a tough, waxy pliability for some moments after mixing and is not in any sense as adhesive as oxyphosphate cement.

In its stiff, doughy condition it has something of the appearance and feel of camphor gum, and has a translucency not unlike that gum.

This material has been described before in my papers; but under this head, "New Features in Operative Work," it is not out of place to go over it again, and especially in the light of more experience with it.

Recently I had a case of deficient development of tooth structure in the six anterior teeth, supposedly due to an attack of scarlet fever when these teeth were forming. The labial surface of from one-third to one-half of each tooth was badly pitted in a manner not infrequently seen. The patient was at that age (eighteen) when sensitiveness was predominant in regard to the unsightly appearance of these prominent organs, her features otherwise being pronounced handsome. It was a case difficult of restoration by inlay work, as well as involving expense that her limited means would not stand. Devitalization, cutting off and crowning had been discussed and advised as the best remedy by several dentists in prior years, so she informed me, and I mentally considered that method of remedying the evil. I determined that it was a good case for porcelain enamel, and prepared the teeth for that material and applied it with results that were most gratifying both to myself and the patient. When finished it would have been difficult for any experienced operator to note that they had been repaired, say nothing of the observations of the laity. The appearance would impress any one that the teeth were well formed, and by nature's handiwork. At no place does the repair show the faintest outline, so perfect is the translucency, and blending of the artificial with the natural.

Now comes the question of durability; especially as concerns the action of the fluids of the mouth. This question was considered and discussed before the work was begun; and if it all has to be done over in a year the patient is satisfied, and prefers it unquestionably to anything that could have been done with gold; which might have been very durable, but would be exceedingly unsightly. The patient preferred to have the teeth remain as they were to the gaudy display of gold.

In this question of durability I am dependent upon the assurances of the producer of the material; for anything we may do as operators to test its properties, takes time in the practical use of it. I am impressed as to its worth as a long sought for filling material, to the extent of faith enough to try it in certain cases; but with a full understanding with my patient as to what I know, and what I do not as yet know about it. I am inclined to believe it has an important place in dentistry; at least, the same as has oxy-phosphate cements, etc., that we do not advocate or count on as a durable or permanent filling material. They have their place, and so has this; and if it proves better than we find it difficult to believe, we shall be pleased.

Some attempts have been made to use it as the long sought translucent cement for porcelain; but as it has not a very adhesive property, and should be mixed pretty stiff for best results, it certainly is not generally applicable for holding in inlays. Remembering that we should prepare our cavities with about such undercuts and anchorages as we would for amalgam, when we use this enamel for filling, it would be absurd to expect it to hold an inlay in position in the usual formation of cavities for inlays. If a cavity can be well under cut after the inlay has been made, and the inlay well grooved, corresponding to the position of undercuts, and the mix is made thin enough to permit surplus escape when inlay is pressed to place, we might have, under these favorable conditions, some faith that it would hold; though a thin mix if at all adequate, would take considerable time to harden properly to permit of dismissing the patient; but properly manipulated, the line of demarkation between inlay and tooth would be eliminated.

(To be continued.)



TOOTHSOME TOPICS.

BY R. B. TULLER.

Some weeks ago
I made a start toward
Securing an automobile—

A necessary adjunct to every well-regulated dentist-

Or any other man who pretends to be up to date.

I took the bull by the horns and went out and bought the cap; and, incidentally, a small bottle of benzine perfume.

And that's as good a start as many a fellow makes who hasn't got the price for a complete outfit. It is a commendable beginning.

Next, I went and looked in an optical goods window at a pair of blinkers.

Then I ventured in to try on a pair or two to see how I would look in them, and see which style was the most becoming to my beauty. Some of them made me look like a giant bull frog about to croak.

I thought I could buy a pair for about twenty-five cents; but the man behind the gun (or counter) fired, "From three to seven dollars." Whew!

And when I said they were not just the kind I wanted, and edged away, he had the impertinence to ask me what machine I had.

Some people have an inquisitiveness that is supremely embarrassing.

Although I did not buy any glasses, I gave him the glassy stare and departed. I won't go there again. He's lost one possible good customer.

But don't think for a moment I was intimidated. Not at all. I went to a department store and found a counter full of first-class ones marked down from 39 cents to 24 cents. Just what I wanted.

I bought a pair with blue tinted glass, and I want to tell you they come in handy.

Take my advice and go and buy a pair and wear them when soldering or watching a bake of porcelain in the furnace, and you'll save your optics, and you can't tell how soon you may want an auto.

While wandering about in this store I found a fine monkey wrench for only 38 cents, and an oil can for 9 cents, and a pair of leather gloves for 99 cents.

A monkey wrench is always handy. You never can tell when you may want to use one.

For instance, I was once riding with a friend over a rough wagon trail out in Wyoming when our auto broke down.

My friend, after an examination and a fruitless search through the tool box, asked me to make my way across the gulch to a shack upon the other side, and see if I could get the loan of a monkey wrench.

When I got to the shack, after much effort, I found a stolid looking Swede in possession.

"My friend," said I, "We've broke down over across the gulch, and I'm looking for a monkey wrench."

"Monkey ranch?" he asked, as he stared at me. "Vell, a fallar hey run a goats ranch up de gulch, and a man he bane run a cattle ranch down below; and Ai bane run sheeps ranch for a goot many yare, and dat bane hard vork enough; but Ai don'd know any mans 'round har blame fool enough to try run a monkey ranch."

The oil can is handy around my lathe and engine, and the gloves are just the thing around a hot vulcanizer.

Please note that I am not throwing away a lot of money in anticipation of the expectation of the realization or consumation of an auto hope. I'm conservative and practical, but getting there.

O, I'll get it all right. Don't worry about that. I think I have a good start; for, besides the above mentioned articles, I have a pretty good rain coat, a pair of overalls and jumper, a cake of sapolio and a can of gasoline; and I'm running a dime savings bank for the rest.

The only trouble with that is my wife knows the combination, and it has so happened so far, that the street sprinkler's assessment came due; or the ice man wanted a little on account; or the milkman's ticket had to be paid for; or the telephone collector found the box

short a dozen nickels or so; or some postage stamps were needed; or a little street car fare was necessary; so that that end of the effort toward securing an auto hasn't got on as well as the etceteras mentioned.

It is, however, by small efforts to begin with, persisted in and pursued diligently, that great things are oftentimes accomplished; besides, I'm looking for a slump in prices in due time. I don't expect to get an auto next week. Might get the oil cloth case for extra tire.

I have not taken out a license yet. Don't think I need be in haste about that, as the city hall is not likely to move or close up; or the numbers run out.

I have been taking some lessons about running a machine. A friend takes me out occasionally, and I hold the thing and keep her from running away, while he gets out and tightens a nut or monkeys with the sparker—or something; and the mettlesome thing never got away from me yet; though she snorted a good bit sometimes as if she might try. But I held her.

I've learned to put my shoulder to the wheel, and to put my weight on the lever in an effort to pry her out of the mud. I know a lot about an auto. I ought to, of course, if I'm going to get one. I've walked six miles to get a man with a team to tow us somewhere.

There's one thing, however, that I will not have on mine; and that's one of those honk-honks. They are 'way out of date and abominable, and if I can't have a pipe organ on mine, I won't have a machine.

As just one of the ordinary, common citizens and not yet an autoist, there's nothing arouses my hot blood so quick and so much, as to hear that coarse, husky, vulgar honk-honk as I jump back while the noble machine—in itself—dashes past and clips a button or so off my coat, or skins my shins.

There is something positively irritating and offensive in that unmelodious honk. I hope I shall have some regard for my fellowman, though he be in a lower walk of life than I—when I get equipped; and I hope I won't affront his feelings by a series of squawking goose calls before divesting him of his buttons, or fixing him up for the star at a funeral.

If I must take a button or so, or even throw a person down by

too close a rub in my pursuit of pleasure, it shall be to the sweet strains of music.

"Nearer My God to Thee" will certainly be more consoling, and will prepare ones mind better, if perchance he has got too much in the way to ver get out again.

I believe in the proprieties; and if one must cause a funeral now and then, do it with appropriate accompaniment of sounds, sweet and melodious, rather than that harsh rasp on the ear that may never again hear.

People, of course, have different ideas about these things. Some may think that one of these syren fog horns is the thing, with its agonized screech and wail; for, true enough, the unfortunate whose condition in life compels him to plod about on foot and occasionally be an impediment to the autocratic autoist, doesn't often have a chance to perform that last involuntary expression of terror as the machine bowls him over, and the auto does it for him, poor devil!

But for my part I'd feel better tooting something touching, if it is to be that some one will not get out of the way quick enough. That is as little as one could do for the unfortunates who have to walk, and will get in the way.

Time moves in cycles. There was a time in the development of man on earth, when it was, and had to be, the survival of the fittest. Civilization came along, stirred men's hearts to feel, to think, and say, "Live and let live." But in the vast strides of this civilization, with its accompanying and astonishing development in all the arts and sciences that minister to the needs and demands of this higher civilized culture, there seems to come again this wave of nature's law, the survival of the fittest.

The fittest, however, is not he who is best in physical strength and skill, but he who can surround himself with engines of various kinds that will do his work for him; and among them is the auto. He who cannot provide himself with an auto must walk. He who walks may get in the way. He who gets in the way, gets run down; and he who gets run down should have gotten out of the way; and the coroner's jury ought to censure him for carelessness. Huh?

I am looking forward to the day when in luxury and ease I shall have my auto and chauffeur and—

Gee! here comes the agent after overdue rent. Here is where the auto-crat runs me down.

AMERICAN DENTAL JOURNAL.

SOMNOFORM ANESTHESIA.

BY C. M. PADEN, D. D. S., CHICAGO, ILL.

SOME ADVANTAGES OF SOMNOFORM OVER NITROUS OXID GAS.

The somnoform apparatus can be carried in the coat pocket.

In almost all emergency cases the nitrous oxid apparatus would be out of the question.

It would be quite inconvenient for the nitrous oxid specialist to carry his apparatus to the surgeon's operating-room. In such a case the surgeon would be compelled to take his patient to the specialist.

As the induction of somnoform is about one-half as long as the induction of nitrous oxid, the patient is saved much of the dread and inconvenience of the anesthetic.

The operator has more than twice as long to work with a single administration of somnoform.

Friends of the patient, who watch the operation, witness no alarming symptoms.

SOME ADVANTAGES OVER CHLOROFORM OR ETHER IN MINOR OPERATION.

Time of induction of somnoform is thirty seconds, while the chloroform or ether the induction is much longer.

I have administered somnoform for surgical operations where the patient was anesthetized, operated on, and left the surgeon's office, in less time than he could possibly have been thoroughly anesthetized with chloroform or ether.

After an operation where chloroform or ether has been employed the patient is liable to be sick for an hour or more, while with somnoform, given with the regular somnoform inhaler, using fresh drug, and by one who thoroughly understands the administration, there are very seldom any unpleasant after effects.

It is generally administered without any preparation on the part of the patient, and but a very small percentage of patients experience a feeling of nausea.

From my observations and experience I would advise the use of chloroform or ether for an operation lasting over twenty minutes, or where a very profound anesthesia is required.

In order not to make this article too long and tiresome, I will mention but one case: Dr. Chas. P. Donelson, of this city, called at

my office and said that the surgeons of Muskegon, Mich., had sent him the mother of a prominent resident of that place, who was to be operated on for the removal of a tumor. Owing to the patient's advanced age and the weak condition of her heart, they were afraid to He asked my advice about giving her administer an anesthetic. somnoform. After inquiring thoroughly into the case, I told him that I thought she could take somnoform better than any other anesthetic. The patient was brought to my operating-room, I administered the anesthetic and the patient was operated upon without the slightest symptom of alarm. There had been no preparations made previous to the operation. Her two daughters, who accompanied her, had engaged quarters at the Palmer House, expecting to stay in the city for a few days. They supposed that she would be taken to one of the hospitals to be operated upon, and that it would be a day or more before she could recover from the anesthetic and inconvenience attending the operation. She recovered so rapidly and felt so good that Dr. Donelson sent them back to Muskegon on the boat going that same afternoon, with instructions to their family physician as to the dressing of the wound. The surgeon and all concerned were very much pleased with the action of the anesthetic.

Why do some dentists have trouble in administering anesthetics? Because students are graduated from our schools with the theory only, and not the actual experience.

A few days ago I had occasion to meet one of the graduates of 1906, from one of the schools of this city. I asked him what experience he had had in administering anesthetics during his college course. He said he had the best theory, but scarcely any experience. How many times did you administer, or assist the demonstrator to administer, chloroform, ether or nitrous oxid, or how many times did you see either of these anesthetics administered? He said, "I never assisted or saw an anesthetic administered." I asked him if there had been any operation performed under an anesthetic. He said, "Yes, but in all the operations that I witnessed the patient was anesthetized before being brought into the pit."

"Did you ever see somnoform administered in your school?"
"Yes."

"How many administrations were each student required to give, with the assistance of the demonstrator?"

"A student was not allowed to administer an anesthetic, it was always done by the demonstrator."

This interview is mentioned just to bring out a point which I wish to make clear. It is such a man as this who, having had no actual experience in administering an anesthetic, purchases a somnoform outfit, gives a few anesthetics, has troubles of his own, then writes an article for publication, condemning the anesthetic.

It seems strange that the college should demand, of the student, so many credits in gold, silver, prosthetic and laboratory work, and gives him no actual experience in administering anesthetics, the most important thing, in regard to the patient's life, in dentistry.

I hope the day is not far off when the student will be required to have the actual experience in administering anesthetics, for I believe the colleges owe it to the students, and that the graduates owe it to their patients after entering practice. When that day comes it will not be necessary for the student, after he has received his diploma, to enter a school of anesthesia, give his time, and go to the trouble and expense of taking a post-graduate course in order that he may be able to successfully administer an anesthetic.

In view of the fact that so many dentists, who are generally ignorant of the administration of anesthetics, are giving thousands of anesthetics with somnoform to all classes of patients, without regard to age or physical condition, it is remarkable that the mortality is so low and shows conclusively that somnoform is a very safe anesthetic.

WHY I ADVISE SOMNOFORM FOR STARTING A GENERAL ANESTHESIA.

The induction is so rapid that the patient is thoroughly anesthetized before he can realize what is taking place. There is no time for the talking, struggling or smothering sensations that usually attend an administration with chloroform or ether. The surgeon is permitted to start the operation almost immediately.

WHY I PREFER SOMNOFORM TO NITROUS OXID FOR STARTING A GENERAL ANESTHESIA.

There is no cumbersome apparatus in the way of the operator. The patient is anesthetized in less than one-half of the time.

Absence of asphyxia, and no cyanosis, which I deem its greatest advantage over nitrous oxid.

This article has not been written for the purpose of condemning nitrous oxid, chloroform or ether, but to show the conditions under which somnoform is preferable to these other anesthetics.

Several very interesting articles will appear, in the different medical and dental journals, during the coming year, by surgeons who operate under somnoform anesthesia.

OZENA.

BY EDWIN P. HITCHCOCK, M.D., NEW YORK CITY.

Some three months ago a young lad, Master S., 12 years of age, was brought to my office with the request from his teacher that he be sent home. As he entered the room I was much impressed by the fearful odor from him. It was indescribable and permeated the entire room. Not having seen a case like this before, I made a careful examination for the cause. He was anemic, had difficulty in breathing, was somewhat emaciated and seemed poorly nourished. On questioning I found that this condition had existed for some time (two months or more), the odor steadily becoming worse. He had been treated by physicians unsuccessfully in the meantime. As the rules of the Board of Health of this division limit me simply to a diagnosis, I pronounced the case from the odor, history and limited examination, a case of ozena or fetid form of atrophic catarrh, with a possible necrosis or caries, and referred him to the nose and throat hospital of this city, his teacher and the principal meanwhile protesting against his attending school, and as I had no authority to send him home, the disease not being recognized as contagious, I advised that he be allowed a seat by himself. At the end of two weeks' time, not seeing what I would consider much of an improvement, I, on my own responsibility, gave him a K. & O. douche and a small bottle of glyco-thymoline. In about ten days' time the odor was hardly perceptible and at the end of two months it had entirely disappeared, his general condition was remarkably improved, as well as his sense of smell. The case was watched daily both by myself and the principal and his teacher, who became much interested as the case progressed. Summary: the boy has not lost a single day at school, his sense of smell is completely restored and his health has never been better.



THE ANTRUM OF HIGHMORE.

BY G. S. L'ESTRANGE, F. R. C. S., IRELAND.

As you are all familiar with the anatomy of the antrum of Highmore, I need not touch on it further than to give a few particulars bearing on its surgical relations.

It is a triangular pyramidal cavity lying under the surface of the cheek, and forming what is popularly known as the "cheek-bone." Its apex lies in the zygomatic process, its base being formed by the lateral nasal wall, the orbital plate of the superior maxilla, the facial wall, and the posterior surface of the superior maxilla form its three sides.

Of these surfaces, two are, from a surgical point of view, important—the base or nasal surface as containing the "ostium maxillare," or natural opening of communication between the nose and the cavity of the antrum, and also as being the site of Mikulicz's operation, and partly of the radical operation of Desault Kuster.

The "ostium maxillare," or natural opening of the antrum, is a small round aperture, lying in the middle meatus, under the middle turbinal, and situated about equidistant from its anterior and posterior ends. It is, on an average, about $3\frac{1}{2}$ mm. in diameter, and serves as an inlet for air in the normal state, and an outlet for fluids such as pus in disease. There may be an additional abnormal opening, the "ostium maxillare accessorium," found by Zuckerlandl to exist in about 10 per cent of all cases. The capacity of the antrum is approximately averaged as 20 cc., or a little over half an ounce.

Of the various accessory sinuses of the nose, the antrum of Highmore is most frequently found affected, and for several reasons. Firstly, by its position and structure it is most liable to injury, it being more exposed than any of the other sinuses, except the frontal,

^{*}Read before the Odontological Society of Queensland.

which, however, has thicker walls, and is consequently better protected. Secondly, it is liable to transmitted inflammations of dental origin. Thirdly, because its orifice of communication, the ostium, is occluded wherever the middle turbinal is in a state of congestion. And, fourthly, because the position of its opening being at the top of the cavity, the antrum in the erect posture holds fluids like a cup. In only one position can the antrum be emptied of its contents (and then only if the natural ostium or the accessory ostium be large), namely, when the head is lowered and tilted towards the sound side.

As you will perceive by examining the specimens lying on the table, the antrum is liable to injury primarily on two of its sides—the facial and the orbital; but the latter being very rare, indeed, we need not consider it further. The facial wall, however, is frequently broken through by violence, such as the kick of a horse, thus causing the hollow cheek with scarring so frequently noticed in children and adults. If immediately brought under treatment, this may be successfully dealt with by opening up through the cheek over the alveolar process, raising the depressed edges, and packing with iodoform gauze.

Functions.—The functions of the antrum are threefold: Firstly and chiefly, to add resonance to the voice; secondly, to assist in warming and moistening the air entering the lungs; and, thirdly, on a well-known mechanical principle, to add lightness and strength to the bones of the skull.

Peculiarities.—The antrum may present many peculiarities of shape, development and structure. It may be very large on one side and very small or even absent on the other, its size depending on the amount of osseous development taking place, as it may also contain pockets or cells, intrinsic or ectatic, similar in some instances to the ethmoid cell which is sometimes found lying in the anterior end of the middle turbinal bone, and which can with difficulty be at first sight distinguished from an abnormally large ethmoidal bulla. These cells or pockets may infringe on the orbit, the zygomatic process, the palatebone, and even the hard palate itself. Their surgical significance is twofold: They cause unequal results in transillumination, and they render a thorough curetting away of diseased mucous membrane very difficult in the radical operation. As a further peculiarity there may be a complete septum dividing the cavity into two parts, one of which may have no opening communicating with the nose. This septum

must be taken carefully into account, as, when one side may contain pus, the other—the healthy side—may be the only part opened in probe puncture.

Causes of Empyema.—By empyema we mean a purulent discharge from the cavity, which discharge may be the result of (1) true inflammation; (2) transmitted inflammation, either of which may again be classed as acute or chronic. As true inflammations are classed those caused by coryza, influenza, erysipelas, croupous pneumonia, enteric fever, scarlatina, measles, diphthreia, smallpox, etc. Post-mortem examination shows that all these affections cause sinus suppuration under certain conditions— it is particularly noticeable the frequency with which sinus empyema is found in tuberculous subjects. Frankel and Wertheim have, in a large number of autopsies, found it present in 33 per cent of patients dying of tubercle, but in no case was the pus tubercular, nor was there primary tubercle of the structures surrounding the antrum. Their conclusion is that the condition is due to a lessened power of resistance. Of coryza as a cause of antral empyema there is no doubt it is undoubtedly the commonest, but of the cause of corvza itself we are, as recent correspondence in the medical journals show, just as ignorant as our great-great-grandfathers. One man catches cold from sitting in a draught, another from being in a heated room. Moreover, the drover who camps out in rain, snow and wind, with often wet blankets, catches a severe cold the first night he sleeps in a room. While, to account for the theory of his coming in contact with micro-organisms by sleeping in a room, and thus being infected, we must instance the heavy cold produced by shutting one's doors and windows for a night, after having become accustomed to everything open. True inflammations may succeed extensive use of the galvano cautery, or of powerful caustics on the middle turbinal, also the nasal tamponade to lessen hæmorrhage, and to act as a germ protector after intra-nasal operations. I have several times seen a raised temperature with consequent empyema resulting from operation on the middle turbinal, though a common result is an acute otitis.

Transmitted Inflammations.—Under this heading come empyemas of dental origin, those the result of trauma of the superior maxilla, from tumors, syphilis and tubercle.

Of these five causes by far the most common is the first. If we examine the floor of the antrum, we, in nearly every case, can observe the roots of the teeth in outline, projecting into the cavity, forming with the floor of the antrum a series of elevations or undulations. The layer of bone forming the covering of these eminences is very thin, in some cases no more than parchment thick, notably so in the case of the first molar and second bicuspid. Other teeth may have a very intimate relationship to the cavity, even, in exceptional cases, the lateral incisor and the wisdom tooth, but they are distinctly abnormal in such relationship, and, in order to be absolutely sure of entering the antrum, one must open over the second bicuspid or first molar.

As you all know, much better than I, an abscess or a well-marked periostitis is frequently found at the root of a carious tooth, which abscess has only a thin layer of bone, about one-third to one millimetre thick, separating it from the antral cavity, and which can easily penetrate this dividing layer. The anatomy of the part shows that no amount of care can easily prevent such an occurrence, nor can one estimate its probability, except in so far as a high or low palate gives some index as to the size of the antrum, and its relation to the roots of the teeth. A very low palate, with deeply set teeth and small bony development of the skull, would lead one to conclude that the separating layer and bone was less than normal, while a high arched palate, with small molar eminences, strongly developed jaw, and large firm teeth, would suggest that the floor of the antrum participated in the general bone density, and that the sockets of the teeth in the alveolus were also dense and massive.

Careless extraction may cause infection of the antrum by producing a fracture of the floor, but suppurations of this origin have not yet come under my notice in Brisbane. Nevertheless, the most careful and expert operator may, owing to natural and unavoidable causes, find himself possessing a patient suffering from antritis consequent on tooth extraction.

For instance, recently a lady came to me complaining of postnasal catarrh, with large post ends to the inferior turbinals. These were removed with the snare, and her condition was, under treatment, gradually improving, when she returned one day with the following statement: Four days previously she had had the first molar extracted for severe toothache. The day following she had suffered from a severe headache, and the day succeeding that she noticed a bad smell with discharge from the nostril on the same side as the tooth had been extracted, with some pain in the cheek and a great tenderness in the alveolar region. Examination showed tenderness all round the antrum on pressure, and the middle meatus of the nose filled with pus. A sound passed easily through the molar socket into the antrum. This opening I enlarged, washing out a lot of offensive pus. After eight days syringing all discharge ceased. I have seen in the last week a similar case with even better results—the suppuration ceased in five days through frequent washing out. Therefore, in cases of headache, with tenderness and sense of fullness in the cheek wall, with or even without nasal discharge, all following on tooth extraction, an empyema must be suspected. The extraction has caused the communication between a dental abscess and the antral cavity.

Suppurative periostitis accounts for by far the largest number of dental empyemas. Next in order follow as causes: Suppurative cysts of dental origin, and more rearely dentigerous cysts.

Tumors.—Tumors of the antrum may be sarcoma or epithelioma, and give a very unfavorable prognosis. They may be diagnosed in an early stage by the presence of a feetid watery discharge issuing from the middle meatus.

Syphilis of the antrum is always of the tertiary variety, and is generally the result of infection from unsterilized instruments. For all known cases separate instruments are used. For any doubtful case it is wise to use an instrument set apart for the purpose, and which is immediately sterilized after use.

Tubercle of the antrum is so rare as not to need any further notice.

Mucous Membrane.—As the duration of an empyema is dependent solely on the amount of change having taken place in the mucous membrane lining the antrum, it is well to describe its structure. It consists of three layers, a superficial delicate connective tissue covered with ciliated epithelium; a middle glandular layer, in which the glands lie in patches or islands; and a third glandless or periosteal layer, containing spindle cells. The importance of these layers is understood as above mentioned, when one remembers that in all chronic empyemas there is great destructive change in them; there is, in addition, a free proliferation of unhealthy granular connective tissue

amounting in cases to true polypus formation, which must be all thoroughly removed before suppuration ceases; this degeneration affects all three layers, even the inner or periosteal one. Such rare affections as mucous cysts, hydro-, antri- and osteo-phites need not be mentioned here.

Symptoms are classed as subjective and objective.

Subjective Pain.—Pain under the molar process and above the alveolus is found in most cases, and in every case at some stage. two classes of cases it is invariable and persistent: in acute empyema of dental origin, with extensive periostitis of the alveolar process and the superior maxilla; and secondly, in the acute suppurations one finds in the track of an influenza or erysipelas. Especially in the erysipelatous variety there is a feeling of severe tension and swelling, increased by pressure on the cheek with the finger. In all acute forms, pain in the infra-orbital nerve is common; in chronic cases, the pain is more of the type of a general neuralgia. Pain in the orbit is frequent, with increased lachrymation amounting almost to a marked papillitis, but more generally causing what is described by the patient as a weak eye. Headache is usually unilateral and frontal, but may be, in exceptional cases, vertical. It is of the morning variety, decreasing in intensity towards mid-day, as opposed to the headaches of migraine, eye-strain, and the pressure of spur, venal incapacity, etc. Neuralgia is constant in all morbid affections of the antrum, and one must suspect strongly an empyema in cases of morning headache and fifth nerve neuralgia with a weak eye.

Purulent discharge is to be observed in all marked cases, issuing from the nose, and increased or lessened by posture. Many patients can, by tilting the head to the opposite side and lowering it, and repeatedly blowing the nose, produce in the very early stage of antritis, a profuse, watery, greenish discharge, to the amount of the full antral capacity. These patients usually find antral inconvenience after a heavy coryza or attack of influenza. They are fortunate in possessing large ostia maxillare, thus preventing their sinusitis developing into an empyema. If the feeling of tension becomes marked, one can assist them by giving cocaine and adrenalin spray, by using which the potency of the opening is increased, and complete evacuation assisted. But it must be carefully noted that in many antral empyemas no pus can be observed in the middle meatus

or elsewhere in the nasal cavity, nor does the patient give a history of purulent discharge. Some empyemas discharge a very small amount of pus daily, quite out of proportion to the amount of mucoid degeneration going on.

Cacosmia may be observed, or anosmia. As a point of diagnosis, it is notable that out of the five sets of nasal accessory sinuses, an empyema causes an unpleasant smell in only two, namely, the antral and the sphenoidal. Much more frequently is the complaint made of a chronic cold in the head. Perverted sense of smell is common, but by no means invariable.

Objective Symptoms.—The objective symptoms are "pus in the middle meatus," by anterior and posterior rhinoscopy, and "Fränkel's sign." Pus in the middle meatus may be due either to antral, frontal or anterior ethmoidal suppuration. A differential diagnosis can easily be established, by passing a cannula into the frontal sinus, and washing it out, or by washing out the antrum with a cannula. If these two sets are normal, we would diagnose the anterior ethmoidal cells as affected. In typical cases the turgid swelling of the middle turbinal, with a streak of pus lying between its anterior end and the swollen hyperæmic mucosa of the lateral wall, and nuciform process, in most cases obliterating from sight the ethmoidal bulla, makes a diagnostic picture. The swelling may cause the appearance of a bi-lobular anterior end to the middle turbinal, with the streak of pus lying between the Fränkel's sign consists in cleaning the pus away from the middle meatus, then lowering and tilting the head to the opposite side. If empyema is present, pus will flow from the ostium, and cover the middle turbinal anew. Hayck, of Vienna, has improved on this; he first cocainises the middle meatus and turbinal, thus making the orifice of the antrum very much more patent.

Often, however, a general hyperæmia is the only abnormality visible on inspection. I have observed many cases where nothing more could be noted, and empyema was only suspected from the patient's statements as to pain, headache, and lachrymation. In this case further evidence is necessary, and this is afforded by "transillumination," "probe puncture," and, in some cases, washing out through the natural opening. As the last-named is theoretically the ideal method, I shall take it first. It consists in the use of a small Hartman's cannula, with rubber tube and syringe. After cocainising the

middle meatus, the cannula is introduced under the middle turbinal into the ostium. The antrum is then thoroughly washed out, and the washings examined for pus. For this purpose, a black vulcanite basin is necessary, in order to show up traces of pus, if present. Washing out through the natural opening is not, however, always practicable. A very narrow olfactory fissure, or a turbinal which has little curve, but lies flat against the lateral wall, will make the introduction of the cannula impossible, unless the middle turbinal, or part of it, has been previously removed. This is not justifiable while we have at our disposal two other methods, both easy of performance. Transillumination, or Hervng's method of diagnosis, is a pretty and fairly reliable mode of diagnosis, and the result may be relied on as accurate in about 80 per cent of all cases examined. A small electric lamp, constructed specially for the purpose, with cable attached, is introduced into the mouth, the surroundings being, of course, perfectly dark, as in a photographer's room. If empyema be present, a dark side to the face will be noticed, and absence of the "lachrymal tache," i. e., a small semilune of transparency visible on the sound side, just under the lower eyelashes. Transillumination as a success, however, is controlled by several important factors, and is only absolute under perfectly normal conditions. The presence or absence of antral septa, thickness or thinness of either side of the facial bones, polypi, deviation of the nasal walls, scarring of the facial integuments—all these are to be considered as influencing the result. Havek states that several times he has found nothing abnormal in an antrum, after transillumination had shown it as markedly dark, and that, further, he has observed several cases which gave complete equal transparency, in spite of the existence of a marked muco-purulent catarrh. Wertheim also states that a negative result would have repeatedly left him in error, as was subsequently proved. Lichtwitz has shown that, even after removal of all pus and repeated washings out, the affected side remains dark. that transparency of an antrum depends not on the presence or absence of pus or muco-purulent discharge, but on the amount of change that has taken place in the muco-periosteal lining. It must be noted that, after operation on an antrum and subsequent healing, transparency as a test for pus is unreliable for a very long time, until the lining of the cavity has become normal. Unequivocal proof of suppuration can be easily afforded by probe puncture. A hollow Lichtwitz needle (straight) is introduced into the previously well-cocainised inferior meatus, and, in an inward and upward direction, is passed through the, in places, very thin lateral nasal wall. Air must be syringed through first, in order, by sound and by pressure, to make sure that the correct position has been attained. If pus is present, it is freely washed out through the natural opening. This means is absolutely diagnostic and unequivocal. Probe puncture may also be done with a curved needle in the middle meatus, or, rather, over the inferior turbinal; but in this place it is neither so safe nor so easy. The danger in both cases is that of injuring the contents of the orbit.

A fine drill, followed by a fine cannula, might be inserted into a tooth-socket, and through into the antrum; but this as a means of diagnosis has fallen into disuse, while the old method of pushing a large trocar and cannula in through the canine fossa has deservedly been abandoned.

Treatment.—Having proved the presence of pus, it remains to choose a method of dealing with it, and this choice is controlled by two factors: the presence or absence of teeth on the affected side, and the probable duration of the empyema. In acute affections, daily washing out will invariably speedily cure; but where chronic changes with polypus formation has taken place in the mucous lining, a much more radical procedure becomes necessary. Three methods are open to us:

(1) Cooper's operation of boring through a tooth-socket; (2) Mikulicz's method of opening through the inferior meatus; (3) the opening of the facial wall of the antrum above the alveolar process. I can not say whose method this last is.

Cooper's method is very old, dating back to 1670, and, taken all round, is the one still most in general use. After making an opening of about one centimeter in diameter vertically upwards through a tooth-socket and washing out, the cavity is packed with iodoform gauze, which is on the following day removed, and a solid vulcanite plug fitted to the opening, with a flange sufficiently large to prevent it slipping up into the antrum. This plug is removed each time before the antrum is washed out.

Mikulietz's operation provides for drainage and washing out through an opening made in the inferior meatus, with a large Krausis trocar and cannula. It is especially suitable for those cases where a sound set of upper teeth bars the extraction of one for boring upward, as in Cooper's operation. To perform Mikulietz's operation successfully, it is usually well to remove the anterior end of the inferior turbinal. The opening is kept from closing by the frequent passage of a curved vulcanite cannula.

The third method of making an opening in the lower part of the facial wall, above the alveolus, is one which I always avoid, and for two reasons: Firstly, the wearing in that place of a plug or stilette is very uncomfortable; and secondly, if a gauze plug is used, the opening closes sooner than it is intended.

Radical Operation.—The foregoing methods may be insufficient, owing to chronic alteration and degeneration of the mucous lining of the antrum, in which case a more radical procedure is demanded. This is provided by the Desault Kuster operation. The posterior nares on the affected side having been plugged from behind, the cheek is held aside with retractors, the mucous membrane on the facial wall of the antrum above the bicuspids is incised, and raised with an ele-The facial wall is then removed with a hammer and small chisel for an extent sufficient to allow of full observation of the interior, and of the full curetting away of all abnormal mucous membrane and polypi, special care being taken to curette thoroughly into any small pocket or cell which may exist. The antrum having been thoroughly cleaned, the bony wall separating the antrum from the inferior nasal meatus is then re-removed with a small chisel, care being taken not to injure the nasal mucosa, a flap of which about 11/2 by 1 centimeter is cut door-fashion or wing-shaped and reflected into the antrum, in order to spread and provide a new healthy mucous lining. The cavity is then tightly plugged with iodoform gauze, and the cheek wound completely closed by sutures. The gauze is removed through the intra-nasal opening, on the second day, and, as a rule, cure is quick and certain. Sometimes it is necessary to wash out for a few days.

For washing out the antrum, whether in acute or in chronic conditions, it is never advisable to use other than sterilized water. Many and different kinds of antiseptic solutions are advised, but are all inferior to sterilized water. A recent case serves to illustrate this. A patient came to me saying he had recently been informed by his medical attendant that all means of cure having failed, he must go into a hospital for the radical operation. He had to come north to Brisbane

at this time, and on my advice, used sterilized water before determining on operation. In ten days all discharge had ceased, to his great delight. Previously he had used all sorts of antiseptics, winding up with creolin.

In conclusion, I would emphasize my firm belief that for every antral suppuration coming under medical treatment, two escape notice, principally through the possessor never suspecting the cause of his headaches and rhinitis, attributing them to indigestion, coryza, neuralgia, decayed teeth, etc. I have met with patients who refused to believe that such a condition existed until confronted with the evacuated foul pus. In all obscure cases of headache, it is a good precaution to test the antrum, either by transillumination or by probe puncture.—

Australian Journal of Dentistry.

RESPECT FOR THE ESSAYIST.

Very frequently we hear complaints from authors of essays presented at state or local meetings that their communications are not sufficiently appreciated by the audiences. This general lack of interest is quite common, and usually manifests itself in non-participation in the discussion following the reading of the essay. It is certainly unjust and very discouraging to the author to meet with such recep-And usually it is the man who has spent much time and energy and frequently has gone to considerable expense in preparing an original communication which possesses decided merit who meets with such fate. What are the causes of this apparent lack of appreciation? Various sources are responsible for the disappointment. More or less, every one connected with the reading of an essay viz., the committee in charge, the author and the audience—is at fault. The non-fulfillment of certain well established principles is the primary cause. Most societies have incorporated in their by-laws a clause reading somewhat like this: The society requires three copies of each paper to be in the hands of the secretary two weeks prior to date of reading. Does the secretary receive these copies? And if not, does he call for them? We have no statistics at our command to prove by figures in what percentage of cases this by-law is complied with, but from actual experience we know that it is a dead letter in most societies. Furthermore, the selection of men to discuss the paper is often done haphazardly, viz., no discrimination is shown

in selecting these men according to their qualifications. If the committee in charge would exercise good judgment these troubles are easily avoidable. If, however, the men are selected with their consent and have received a copy of the essay in due time, but are not present at the reading of the paper without a just excuse, they should be severely censured.

The selection of a subject for an essay deserves the closest consideration by its author. It should be borne in mind that practical subjects are always prone to evoke lively discussion, while a purely theoretical essay may fall flat. And still, a theoretical problem will often arouse the interest of the audience, provided the author has made a successful attempt to prove his viewpoint by logical reasoning. To rehash a certain theory by copying from a half dozen text-books and presenting this conglomerate mixture in a paper before a society is an insult to the mental status of its members. Recently the writer had occasion to listen to an essay of this nature. The subject of the paper was, "How Do Teeth Erupt?" After recapitulating the various theories verbatim from a number of text-books, some of them rather ancient, the writer wound up by questioning the audience, "Did you ever stop to think what makes the hair grow? Did you ever consider why you wink your eve?" Needless to say the much-bored audience remained silent.

Professional men who attend a meeting owe it to their confrere who presents the essay to be prepared to take part in the discussion. A little thinking about the subject to be discussed a few days prior to the meeting, and consulting the literature on the subject, is always of advantage. It is well to confine one's remarks closely to the point in view, and one should never talk merely to be heard. Just criticism is deserving of the highest praise; it helps to recognize one's own shortcomings. The thorough discussion of an essay is highly satisfactory to every one concerned; the author is pleased because his labor is appreciated, and the audience is thankful for the professional benefit derived.—H. Prinz, in July Dental Era.

THE NECESSITY FOR GREATER INTELLIGENCE IN PER-FORMING DENTAL OPERATIONS.*

BY C. N. JOHNSON, M. A., L. D. S., D. D. S., CHICAGO, ILL.

The reason your essay committee assigned this subject for me to write on was probably due to the fact that I have so frequently stated in public and in private that the most unfortunate thing connected with the practice of dentistry was the tendency in many of our members to fall into routine methods of doing things without a wise discrimination in each individual case and without a sufficient study of the particular conditions present as a basis for a particular line of action.

I have in my inmost heart a very liberal fund of charity for the dentist who makes mistakes. The nature of our calling is such that to practice it to its highest possibilities in all the varied conditions which confront the operator in his every-day work calls for a rare combination of acuteness of observation, concentration of energy, calmness of judgment and infinite discrimination. And if a man fails in some of these requisites at times it is not to be wondered at. But when we consider the issues at stake in our operations, when we realize that it is often the saving of a human tooth which is involved, and that the loss of one tooth may mean the disarrangement of articulation on one entire side of the dental arch, we can not lightly look upon our responsibilities nor shirk the highest performance of our duty on the ground that this duty is difficult.

There are so many ways in which practitioners may increase their usefulness to humanity by the exercise of a higher order of intelligence that they can not all be enumerated here, but in a general way it may be stated that the first essential to the best service is a constant study of the conditions which surround our operations, a fact which has long since become the watchword of this club. Many men simply go on day afer day filling cavities in teeth, adjusting crowns and bridges to roots, and inserting artificial dentures with little consideration beyond the cavities, the crowns or the dentures. The forces at work in the given case tending to affect materially the result of the operation are seldom properly studied. I think it was

^{*} Read before the G. V. Black Dental Club, St. Paul, February, 1906.

a member of this society who once reported a case where an operator had gone to the extreme in making broad anchorages in a cavity for the retention of a filling against the tipping stress of mastication, cutting extensively for this purpose to the great discomfort of his patient, when upon examination it was found that there was no tooth in the opposite jaw to occlude with the tooth to be filled. Surely greater intelligence was needed in a case of this kind.

I once saw a student place a bur with its end against the floor of the step in a proximo-occlusal cavity in a bicuspid and start to drill straight toward the pulp. I stopped him and asked why he did that. He said: "You told us in one of your lectures to make the axial wall as nearly perpendicular as possible." And yet some men wonder why dental teachers have gray hairs. It is often stated that you cannot put intelligence into a brain that has no native capacity for it. To a certain degree this is true, and yet it is often possible to stimulate men to think by the proper kind of appeal who of their own accord never would think, and this is no small achievement.

Today as I look at the mental status of the profession the chief office of the advance guard it seems to me is to try to develop the thinking habit in the rank and file. There always will be pioneers of thought who go ahead and break the virgin soil, but the bulk of the harvest must be gathered by the masses, and the important thing is to teach the masses how to properly reap. It matters not so much that a few men may know a great deal about dentistry, but it matters seriously that the large majority are capable of rendering efficient service to their patients. And this service can be rendered only by the exercise of intelligence in the planning and performance of operations.

I saw a short time ago a case in which the bicuspids and molars had all been lost on one side of the upper jaw. The cuspid had been crowned and two artificial teeth to take the place of the bicuspids had been attached to this crown without anything to anchor them at the other extremity. Thus one root was carrying three teeth. This was not only bad judgment on general principles, but in this case it was particularly bad, because of the fact that the three incisors next in line with the cuspid carried crowns, all of which were separated. If these four crowns had been joined together there would have been much greater hope of service for the dummies, but as it was the cuspid

root had become so loosened by the leverage upon it that its loss in a short time is inevitable. And let me say in passing that in no department of our work is there manifestly a greater need for discrimination and judgment than in crown and bridge work. Clearly in many instances all the laws of physics are ignored, as well as the phenomena of mastication and the structure and function of the peridental membranes. It is not in order for me at this time to go into a consideration of the forces of mastication, as they relate to the construction of bridge work, but this should be most carefully studied by every dentist who attempts to do this kind of work.

This question of stress affects us so materially in our every-day operations that at the risk of dealing with an altogether trite subject I must say something about it as it relates to the anchorage of fillings. I am more and more impressed with the very great difference in individuals in the manner in which they use their teeth in mastication. A close study of the landmarks of mastication as left upon the teeth of patients will reveal this in no unmistakable manner, and it is in this line of observation that I make a plea for closer application on the part of practitioners. These landmarks of mastication are very eloquent of what is being done in the way of stress in a given mouth. In some cases they show conclusively that if fillings are to remain in place they must be anchored in the firmest possible manner, and the filling material itself must have sufficient bulk to withstand severe and repeated impact. The wear on fillings is sometimes enormous, and the wonder is not that the fillings are occasionally displaced, but that they remain seated at all. The chief factor in these cases is not always the greatest possible stress that can be exerted by the jaws on closure, but the habitual usage given the teeth in mastication. is manifest by worn places in the occlusal surfaces, by indentations in fillings, and by splintered enamel showing hard service. It is here that great intelligence is needed in repairing the ravages of decay and doing satisfactory work. When a mouth like this is encountered no ordinary methods of operating will suffice. Oxyphosphate of zinc and gutta percha in any position of stress are almost worthless. Even amalgam is soon crushed out of form unless the cavity is made with broad flat seats and the filling material very thick. Gold fillings themselves are not exempt from injury unless the very best mechanical operation is made, and in those positions where it is difficult to secure

perfect results in the manipulation of foil it will be found that a properly constructed gold inlay will withstand the stress to better advantage than any other kind of filling. It is in these cases where I have found the very greatest usefulness for gold inlay work, and where I have been able to secure better results than would have been possible in my hands with any other kind of reparative process. Many of these cases are too readily yielded up after a few failures of ordinary fillings, and consigned to crowning, when they might better be preserved by proper methods of filling or by the use of inlays.

And in this connection let me say that inlay workers have in many instances followed the tendency of relying too much on oxyphosphate of zine and faith to retain their inlays in place. Cavities should be prepared with appreciable depth and with walls nearly parallel so that there shall be some frictional retention to hold the inlays in position irrespective of cement. The intimation that cement has such wonderful adhesive properties as to hold an inlay to a cavity on the same principle that glue will hold two pieces of wood together has given rise to an unwarranted laxity in cavity preparation resulting in the loss of many inlays. We cannot escape the mechanics of an operation even in inlay work, and this is particularly true of the cases under consideration where the aggregate stress on our work is very severe.

It seems to me that here is needed a greater intelligence in planning our work and in the technique of carrying it out.

I have in mind some interesting cases of individuals who exhibit a decided tendency toward hard usage of the teeth in mastication. One is a lady who came to me years ago wearing bridges on her upper teeth. The four incisors were in one piece, and there was a bridge on either side from the cuspid back, making three sections on the upper jaw. Although only recently constructed, the bridges were badly forced out of position; the incisors protruded at such an angle as to push the upper lip forward unpleasantly, and the entire case going rapidly to ruin. The difficulty lay in two directions. In addition to the very severe usage which she naturally gave her teeth in mastication the dentist in constructing the bridges had allowed the jaws to drop too close together, thus admitting the lower incisors to very nearly impinge against the gum lingually of the upper incisors and force them forward. A little study on the part of the dentist in planning this work would have shown him the inevitable result of such

an arrangement of stress. The remedy consisted in raising the bite on the molars and bicuspids, and readjusting the upper incisors into proper alignment. The reconstructed case has now been worn four or five years and, although the gold is badly battered in places, yet the work is still doing service.

Another case was that of a man who wore a set of artificial teeth on the upper jaw and who had ground the lower natural teeth nearly to the gum line. I never saw such havoc wrought with artificial teeth before, and it was necessary to bridge the lower teeth with a heavy gold bridge to save them from the fate to which his previous dentist had consigned them, viz., extraction. The patient informed me that he found it necessary to have a new set of upper teeth made every year or so, and this I learned to be a fact. He would literally grind the porcelain and gold together in a way to wear and splinter the porcelain and batter the gold so that the rough edges would have to be smoothed quite frequently. If you examined the occlusal surfaces of his upper teeth at any time you would find the porcelain coated with gold where he had ground it against the lower bridge, and unless the occlusion was very carefully arranged he would invariably split the upper plate along the median line. I looked forward with some apprehension to the time when this excessive pressure would cause absorption and softening of the upper aveolar ridge, but before this occurred to any appreciable extent the patient was attacked by Bright's disease and died.

Another case in which I came to grief with some of my fillings, and in which I should have used more intelligence at the outset by carefully studying the landmarks of mastication, was a gentleman who had, when a young man, lost several teeth and then suddenly awakened to the fact that he wanted to save the rest. I filled some cavities in his molars with amalgam and wherever opposing cusps encountered my fillings the latter were promptly crushed out of shape and out of position. No amalgam that I could use would long withstand the onslaught of those cusps. Not only this, but the enamel itself was made to suffer. Splinters were broken from it and some times appreciable slabs. The cavities were large, the man not in good circumstances financially, and I had used amalgam to save his purse. But something had to be done. Gold fillings of the size and in the location of some of the cavities would have been an exceeding tax,

and I was not sure that even these would stand the impact for any time. I therefore adopted the plan, which I found to be a good one, of making gold inlays from time to time whenever an amalgam filling failed. These inlays were made with 18-karat solder and let me say, they were made solid. I should have been doubtful of the fate of hollow inlays in such a case. The enamel margins were very freely cut away and the gold extended over them, and this kind of work proved the most satisfactory I could do in these teeth. I have often been curious to know what would have been done in such a mouth by those operators who claim to use porcelain exclusively in all kinds of cases. Of one thing I am certain, that porcelain would have been chipped and smashed in a very short time after its insertion.

I have mentioned only a few cases of the many that occur in practice where a high degree of intelligence is required to accomplish the best results, and this intelligence is to be gained only by a constant study of the conditions present as manifested by phenomena in the mouth, which prove an eloquent index to the acute observer.—

Dental Review.

THE PERFECT RETENTION FOR GOLD INLAYS.

BY DR. A. H. FLEMING, SPARTANBURG, S. C.

The first step is, get a good matrix, in pure gold, 3-1000 of an inch in thickness. The matrix is put into position and filled with semi-hard modeling composition, which is packed into the matrix with a flat instrument and allowed to cool or become hard, and then removed and invested in a good investment material. After the investment has set it is warmed, and the modeling composition is removed.

We now have a fair idea of what the contour is to be, so the next step is to build a core for the inside of the inlay which can be removed from the back when the inlay is completed. This core is made of fine soap stone with one-tenth plaster of paris, and is worked to a stiff consistence with alcohol, placed in the center of the matrix, and trimmed so that it nearly fills the desired contour.

This core is then covered with moss fiber gold and the proper contour is built out in this plastic material. This is then covered with a little cream borax and the solder is placed on this. After this has been done, the whole is placed on a wire gauze, the flame is applied from beneath, and the investment is heated very slowly. When the investment and core have been dried out thoroughly, more heat may be applied from beneath, and this is increased until the solder has been melted, at which time more should be added until the moss fiber gold has taken up all that it will; this it does as a sponge takes up water. When the moss fiber gold becomes saturated you will notice the surface begins to have a solid or glazed appearance. At this point the flame should be removed from beneath and a slow-light flame wiped over the surface of the inlay, which will smooth the surface just as glazing smoothes the surface of a porcelain inlay.

The inlay is now finished, and all that is required to make it ready for the tooth is to grind it down to its margins and polish, then remove the core.

The investment is removed, when the margins of the inlay can be easily seen, and the overlapping gold is cut or ground away and the edges smoothed with a fine disk. The inlay is polished and the core removed from the back, which leaves a hollow inlay and a hole that is larger at its base than at its opening, giving additional strength when the inlay is set.

The cavity should be undercut and thoroughly dried. The inlay is dried and filled with cement, the cavity is also filled with cement, and the inlay is forced into position and held firmly until the cement has set. You now have the best and strongest filling that can be made.—Dental Cosmos.

FILLING LARGE CAVITIES IN ANTERIOR TEETH.

I have found that in such cavities the insertion can be made almost entirely from the lingual, and I think we should insert as many of this class of fillings as possible in this way. I do not wish to be understood as advocating this as a universal practice, but cutting away from the lingual surface is less objectionable than cutting away from the labial. I have also observed that the advocates of retention of tooth substance in these cavities fail to cut beyond the point of danger on the lingual surface. This is faulty technique and a violation of the laws of extension for prevention.—T. E. Weeks, Minneapolis, Minn., Dental Review.

BETTER MANAGEMENT OF LARGE CONVENTIONS.

The recent meeting of the Illinois State Dental Society, held in Springfield, has prompted us to a brief consideration of some phases of society meetings in general, not with a desire to find fault nor to criticise, but with a feeling of fairness and of mutual helpfulness, that improvement and advancement may be made, not alone in the Illinois society, but in all societies the country over.

To be of the greatest assistance to the largest number is the true function, and should be the aim of every good dental society. The larger the society becomes, the more difficult becomes the performance of that function. The Illinois society, after two years of untiring effort on the part of its committee on reorganization, finds its membership suddenly trebled. New conditions are at hand, additional tasks for the president, who finds the increased attendance composed of men new in society life, men not trained in society work and proceedings, who know nothing of parliamentary laws and practices. The change that has come about in the society emphasizes the fact that a presiding officer must be, first of all, a parliamentarian. To successfully meet this new condition he must possess the personality, the voice, the self-reliance that will command respect, preserve order, and so conduct the sessions that the most may be accomplished in the time allotted.

It has been the practice of dental societies, in the past, to choose very frequently a man to fill the president's chair who was utterly lacking in the qualifications of a competent presiding officer, and as a result the societies have suffered. It is a fact that very few men in the societies do, when elected to the presidency, prove good presiding officers, and yet men must be honored with the highest office of the society in recognition of their services to the society, be they parliamentarians or not. What is to be done? Is the whole society to suffer that one man, who can not ably preside, may be honored? The British Dental Association recently solved this problem. The association honors a member with the presidency each year, as before, but his duties are limited to the calling to order of the meeting and to the preparation and reading of the president's address. The gavel is then turned over to a chairman selected by the executive council, because of his qualifications to preside and conduct the meeting successfully. This change has worked admirably with much gain to the British association and we predict benefit would result if societies generally would adopt this course.

The plan, often adopted, of having those chosen to discuss the papers, write their discussions, we believe not a good one, for such discussions are usually too long, and many times anything but discussions of the paper under consideration. A man when allowed to write a discussion is apt to go astray; the real subject is lost to sight and new ones introduced, all of which results in a loss of time and a subsequent curtailment of the general discussion. We believe that more good comes, especially in a large society, from a free and unlimited extemporaneous discussion of a few good papers, than from the necessarily limited discussion of a larger number. As a rule, there are on the programs of the State meetings too many papers for the time allowed for their consideration.

In conclusion, we will mention another mistake too often made, that of allowing a man to appear on the program advocating something he or his friend has to sell. Such a thing is a disgrace to a society, and should never be tolerated. By the majority of the men in the profession such a thing is considered an insult and an imposition, and such it is. Suppose supply companies generally could arrange to have their particular products flaunted before societies by arranging with different members to read papers on their different devices and materials. How long would it be before the dental society meeting would be a commercial and manufacturing exhibit, pure and simple? There should be no place on the program, no time for such exhibitions of unethical and unprofessional conduct, such brazen effrontery! If a presiding officer has the requisite backbone it is clearly within his province to declare such an attempt out of order and out of place.—

Dr. Crouse, in May Digest.



THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The National Association of Dental Faculties held its annual meeting in Atlanta, Ga., and elected the following officers for the ensuing year: President, Dr. J. I. Hart, Milwaukee; vice-president, Dr. Frank Holland, Atlanta; secretary, George E. Hunt, Indianapolis; treasurer, Dr. H. R. Jewett, Atlanta.

NORTHERN INDIANA DENTAL SOCIETY.

The eighteenth annual meeting of the Northern Indiana Dental Society was held at Hammond, Ind., September 18 and 19. The attendance was good and some very interesting papers and discussions were had.

The 1907 meeting will be held at Peru, Ind.

W. R. MEEKER, Secretary.

CANADIAN BOARD OF EXAMINERS.

At a recent meeting of the Canadian Dental Board, all of the old board of examiners was re-elected, and at the election of officers, the present board was again chosen as follows:

President—Dr. Harry R. Abbott, London.

Vice-president-Dr. S. W. McInnis, M. P. P., Brandon.

Secretary-treasurer—Dr. W. D. Cowan, Regina.

The time and place of next meeting was left to the executive committee.

FOX RIVER VALLEY DENTAL SOCIETY.

Fifty dentists were in Green Bay Sept. 11 to attend the fifth regular biennial meeting of the Fox River Valley Dental Society. A session was held Tuesday morning at the office of Dr. F. R. Houston, at which papers were read by B. G. Maerklein of Milwaukee, H. L. Banzhof, dean of the Milwaukee Dental College; J. L. Blish of Fond du Lac, and W. H. Chilson of Appleton. Officers were elected as follows: President, Dr. L. H. Moore, Appleton; vice-president, Dr. J. J. Geary, Oshkosh; secretary, Dr. Mary G. Hastings, Oshkosh (reelected); treasurer, Dr. George Massart, Green Bay. Appleton was selected for the next meeting place.

WARREN COUNTY SOCIETY.

The monthly meeting of the Warren County Dental Society was held at Monmouth, Ill., in the offices of Dr. R. W. Hood. A good percentage of the county members was present and the meeting proved to be a profitable one. Dr. J. F. Kyler, of Kirkwood, president of the society, presided over the meeting and also read an interesting paper on "Gold Fillings." The next meeting will be held in October and will be held at the home of Dr. Kyler, in Kirkwood.

NATIONAL ELECTS OFFICERS.

The National Dental Association, at Atlanta, elected its officers for the coming year and selected Minneapolis and July 30, 1907, as the place and time for the next meeting. The officers follow:

President—Dr. A. H. Peck, Chicago.

Vice-president for the East—Dr. George E. Hunt, Indianapolis. Vice-president for the South—Dr. George Van, of Gadsden, Ala. Vice-president for the West—Dr. D. J. McMillan, Kansas City, Mo.

Recording secretary—Dr. Charles S. Butler, Buffalo.

Corresponding secretary—Dr. Burton Lee Thorpe, St. Louis.

Treasurer—Dr. O. R. Mellindy, Knoxville.

Executive committee—C. M. Work, Ottumwa, Iowa; V. H. Jackson, New York, and T. P. Hinman, Atlanta.

CANADIAN DENTAL ASSOCIATION.

After a convention of three days' session full of interest, the Dental Association closed its 1906 meeting Sept. 8 with the election of officers. As usual the forenoon was devoted to a clinic, and in the earlier part of the afternoon Dr. Ritchie of Halifax read a paper on the influence of heredity on dental irregularity, in the discussion on which parts were taken by Drs. Morrison of Montreal, Guilford of Philadelphia and Cagee of St. John.

Officers were elected by acclamation in the following cases: President, Dr. McInnes, M. L. A., Brandon, Man.; vice-president, Dr. James M. Magee, St. John, N. B.; secretary-treasurer, Dr. Spaulding, Toronto, and registrar, Dr. Doyle, Calgary.

It was decided to leave the appointment of a second vice-president to the executive, when the city in which the next convention is to be held is being considered. This officer is uniformly chosen from the town where the convention is to take place. The executive includes a representative from each of the provinces. A banquet was

held in the evening at the Place Viger Hotel, after which the convention dissolved.

NORTH IOWA DENTAL SOCIETY.

The Northern Iowa Dental Society held its annual convention at Cedar Rapids Sept. 12-13. There were about a hundred dentists present at the convention and many stated that they would surely return to the state convention, which will be held in that city May 7, 8 and 9 of next year. At the closing session of the convention the dentists elected the following officers for the ensuing year:

President-Dr. J. D. Welsh, New Hampton.

Vice-president—Dr. C. W. Booth, Cedar Rapids.

Secretary—Dr. H. P. White, Sioux City.

Treasurer—Dr. F. D. Miner, Oelwein.

The Northern Iowa Dental Society will hold their next annual convention in Sioux City in a year from this time.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

The regular meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice dentistry in the State of Illinois, will be held in Chicago, at the Chicago College of Dental Surgery, corner Wood and Harrison streets, commencing Monday, November 12.

Persons in possession of the following requirements will be eligible to take the examination: First, all persons who have been engaged in the actual, legal and lawful practice of dentistry or dental surgery in some other state or country for five consecutive years just prior to application; second, or is a graduate of and has a diploma from the faculty of a reputable dental college, school or dental department of a reputable university; third, or is a graduate of and has a diploma from the faculty of a reputable medical college, or medical department of a reputable university, and possesses the necessary qualifications prescribed by the board.

Candidates will be furnished with proper blanks and such other information as is necessary upon application to the secretary. All applications must be filed with the secretary five days prior to the date of examination, and the diploma must be presented at the time of matriculation.

Address all communications to J. G. Reid, D. D. S., secretary, 1204 Trude building, Chicago, Ill.



POLISHING AN INLAY.

When grinding or polishing an inlay, always do so toward the margins, as this will have a burnishing tendency and produce a neater and more perfect margin.—Thos. P. Hinman, Items of Interest.

THYMOL IN THE TREATMENT OF ABSCESSES.

Thymol is very insoluble under ordinary circumstances, but it dissolves in oil of eucalyptus, when it becomes a valuable agent in the treatment, especially of the mild forms of chronic blind abscesses.—
Geo. W. Cook, Western Dental Journal.

CARE OF THE MOUTH.

Two drops of camphor on your tooth brush will give your mouth its freshest, cleanest feeling imaginable, will make your gums rosy, and absolutely prevent anything like cold-roses or affections of the tongue.—Dental Digest.

NO PORTRAITS AND FREE DENTAL TREATMENT OF THE POOR.

The Susquehanna Dental Society at its forty-third annual meeting in Allentown, Pa., added to its code of ethics a rule to prohibit members from furnishing portraits for publication in the newspapers as conduct unbecoming the profession. It was also decided to establish in each county one place for dental treatment of the poor.—Dental Review.

CAVITY LINING.

When fillings of gold and alloy approximate in adjoining cavities in vital teeth, galvanic current is often produced, causing continual irritation. This electrolytic action may be greatly modified by varnishing the cavities just prior to inserting the filling material. Absolute dryness of the cavity is essential, that the lining material may form a close union with the cavity wall.—Burton Lee Thorpe, L'Odonto-Stomatorogia.

TREATING PYORRHEA CASES.

The steps necessary to a cure are thorough removal of the deposits, surgical cleanliness of the parts, a fixing of the afflicted teeth to obtain rest, and some medicinal agent that will assist nature to arrest the disease and to regenerate the tissue. After the removal of the deposits, the pockets and surfaces should be thoroughly washed or flooded with warm lactic acid, full strength, or trichloracetic acid, 5 per cent. Obstinate cases may require radical treatment. In cases where the pus seems very persistent, it may be due to necrosis, and in order to provide a better drainage an opening should be made through the bottom of the pocket through the gum.—T. A. Hardgrove, Fond du Lac. Wis.. Review.

FEES.

Good dentistry belongs to a high order of skill and can not be acquired without preparation, integrity and perseverence. Without the aid of skillful dentistry humanity could not have health and attain longevity. We are, therefore, as practitioners of a branch of the healing art, important factors, and can not be dispensed with. In the sphere we operate we are quite as necessary as is the physician and surgeon, for it takes the combined skill of the three professions to keep the human body in a fair state of health. Our remedy then lies in the appreciation of this fact, and a fee commensurate with service rendered should be considered in every case we treat, every case we operate upon, and every denture we supply.—W. H. Chilson, Appleton, Wis., Review.

GOLD FILLING.

Gold unannealed, or but partially annealed, can, with proper manipulation, be brought into such close contact with the walls and edges of a cavity as to practically hermetically seal it, thereby insuring it against the further inroads of decay. To secure results approaching perfection in this particular it is the writer's idea that the cavity should be so formed as to give the operator as nearly direct access to the various cavity walls as it is possible to secure. In other words, it is extremely difficult to adapt and condense gold by working "around a corner." The same rule applies to obtaining condensation at the edges—pressure being applied as nearly as possible at right angles to the edge to be covered.—A. J. Elmer, Bloomington, Ill., Review.

THE PORCELAIN INLAY.

That porcelain has a wide range of usefulness has been demonstrated; that it has its limitations has also been demonstrated. For aesthetic reasons it is indicated for cavities which are exposed to view in laughing or speaking when such cavities can be properly shaped for retention, and where they will have sufficient bulk to stand the stress to which they will be subjected, but where fillings will not be exposed to view, where space is limited, stress is great, and sufficient retention can not be secured, porcelain is contraindicated.—Dr. Jas. H. Prothero, Northwestern Dental Journal.

UNCLEANLY DENTISTRY.

No more spirited discussion has ever marked the proceedings of the Canadian Dental Association than during the opening session, the greatest interest being aroused by the reading of a paper entitled, "Some Results of Septic Instruments," written by Dr. G. Lennox Curtis, dental surgeon of New York, who, at the last moment, found it impossible to be present.

The paper was therefore read by the secretary, Dr. S. F. Morison. It criticised the lack of attention which it was claimed many dentists give their instruments, leaving them, after use sometimes, in a blood-stained condition, and not exercising the first principles of cleanliness.

Not only this, but he asserted that many dentists did not take advantage of the use of antiseptics to sterilize their instruments properly.

Dr. A. E. Webster of Toronto, who opened the discussion, characterized the essay as an insult to the association.

To him it appeared incredible that any moderately intelligent man should make such remarks as were to be found in the paper. He thought that if it had been carefully considered beforehand it would never have been read.

He admitted, however, that dental colleges often failed to make clear to their students the imperative necessity of thorough cleanliness.



Engaged.—Dr. H. B. Blatt, of Philadelphia, and Miss Jennie Aronsohn, of Reading, Pa., will be married in October.

Hart-Pusey.—Dr. W. W. Hart, of Chicago, and Miss Julia Tems Pusey were married at Valley Station, Ky., September 4.

Holmes-Henle.—Dr. Frederick R. Holmes, of Peshtigo, Wis., and Miss Elsie Henle, of Duluth, Minn., were married August 29.

Dr. Lewis Jordan.—Dr. Lewis Jordan, 88 years old, and a retired dentist, died in Delphi, Ind., September 2 after an illness of two months.

Joins Western Reserve Faculty.—Dr. E. E. Belford, of Toledo, Ohio, will lecture at Western Reserve College at Cleveland during the coming session.

Dentist Injured.—Dr. Harry N. Gregg, a dentist in Marion, Ind., was severely injured by a fall caused by a loose board in a sidewalk. He will recover.

Quackenbush-Sargent.—Dr. Charles A. Quackenbush, of Pentwater, Mich., and Miss Nellie Sargent, of Fonda, Iowa, were married in the latter place August 29.

Dr. Wesley Sloan, a dentist at Peoria, Ill., died September 2 of typhoid fever. Dr. Sloan was born in Peoria and had been in dental practice for a number of years.

Dr. Custer Honored.—Dr. L. A. Custer, inventor of the Custer dental furnace, was re-elected treasurer of the American Roentgen Ray Society at a recent meeting held in Niagara Falls, N. Y.

Dentist Caught.—We have caught a much needed dentist. Secured him last week and trust he will not get away, or, at least, not till he has fixed us all up in the highest style of the art.—Williamsport (Ky.) Times.

Dr. Joseph Heiss, a retired dentist, and an inmate of Masons' Home in Philadelphia, died September 9 of general debility. He was a graduate of the Philadelphia Dental College and was 83 years old.

New Dental School.—The Cincinnati Post Graduate Dental College, Cincinnati, was incorporated by Gustavus J. Junkerman, William T. McLean, Martin Ballinger, Charles M. Myers and Matthew H. Elosinger.

Practiced Forty Years, Retires.—Dr. William Jarvie, church deacon, club man, mountain climber and athlete, has retired as announced by cards to his former patients, in Brooklyn, N. Y. Dr. Jarvie was in practice for forty years and is now touring Europe in an automobile.

Michigan Dentist Killed.—Dr. Morris Angelim, a dentist, 31 years old, fell through an open window from his room on the third floor in Bay City, Mich., September 15 and was instantly killed. He was heavily built and striking upon his head his skull was split so that the brains protruded. It was not known whether his death is due to an accident or suicide.

Dr. Charles R. Taylor Dead.—Dr. Charles R. Taylor, member of the State Board of Dental Examiners, died at Streator, Ill., September 13, of typhoid fever. Dr. Taylor was one of the most prominent dentists in Illinois. He was the author of several books on dentistry.

Miller-Hanson.—Dr Charles Miller, of Caledonia, Minn., and Miss Verna Hanson, of Rochester, were married September 5 at the latter place. They will reside in New Ulm, Minn., where Dr. Miller will practice dentistry.

A Hint from Germany.—The latest feature in elementary schools in Germany, where children are provided with baths and taught cleanliness, is the appointment of dentists. At Strasburg during last year 6,828 children were attended gratis in the dental surgery, at an expense of \$1,600. The importance of attending to their teeth is taught the children in the class room. In time all the large cities of Germany will have dentists to attend to the school children.

Robberies.—Dr. W. E. Taylor, Fond du Lac, Wis., loss, \$60; several dentists at Racine, Wis., aggregate loss \$100; D. H. Smith and Bartlett Brothers, in Holyoke, Mass., loss, \$225; G. W. Thophagen, Northampton, Mass, loss, \$50; B. L. Kirby, Springfield, Ill., loss, \$20; Gares, Columbus, Ohio, loss not given; Dubois and Sorenson, Neenah, Wis., loss considerable; C. W. Lupfer, Springfield, Ohio, loss, \$35; Rush Crissman, Rock Island, Ill., loss very heavy; Malcomb Rebb, St. Louis, loss considerable; W. A. McFarlane, Waukesha, Wis., loss, \$20; W. W. Pealer and J. J. Russell, Hayleton, Pa., loss, former \$100, latter \$15.

A Popular Dentist.—Dr. Erdman, the well known dentist, stopped off at Manchester on his way home from the mountains last Monday and telegraphed Wakita parties: "I am coming home tonight, etc." The Wakita boys wishing to give their distinguished citizen a hearty welcome on his home coming, Tucker's Military band of some thirty pieces was hastily called together and proceeded to the depot just as the train pulled in. Those who heard the serenade pronounced it grand as far as volume was concerned. As the serenade reached the business part of town the doctor added to the hilarity of the occasion by giving a military salute of three guns. The band then dispersed and quietness reigned.—Medford Star.

A Wooden Leg.—A suit over who shall pay for a wooden leg is in progress in Pittsburg. The question is as to whether a man who marries a girl with a wooden limb, marries the limb too. Dr. Clarence Gukert, a dentist, has been sued for \$100, the cost of a wooden limb, by Dr. R. H. M. McKenzie at Pittsburg. McKenzie brought suit before an alderman, alleging that the limb was furnished some years ago to a young woman, since Mrs. Gukert, and he wants the husband to pay for the limb. Gukert's defense was that a wooden limb was not part of any person, any more than is a shoe or a finger ring; that he should not be forced to pay for anything bought by his wife before their wedding. The alderman gave judgment for McKenzie, but Gukert has appealed the case.

Charged With Larceny.—Mrs. Anna Cohn, wife of a junk dealer, caused a warrant to be issued for the arrest of Dr. Davis, a dentist at Freeport, Ill., charging him with appropriating to his own use gold that was contained in two crowns she left at his establishment. Davis was arrested and lodged in the county jail.

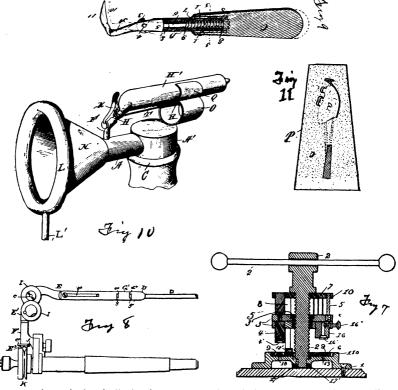
Des Moines College No More.—The Des Moines College of Dental Surgery, established about seven years ago, will not reopen for business this fall. A disagreement between the management and some of the creditors of the school is responsible. The management has not been able to secure a complete faculty for the coming year. Dr. W. A. Harrod is the dean of the college and Dr. S. U. Marietta is secretary. The college has been affiliated with Drake University, but was not directly connected with it and was not under its management. In the last seven years several large classes have been graduated from the college and many of the students have done creditable work. The expense of maintenance, however, has been such that the school has become involved in debt. The equipment used will go to the Marshall Dental Company, which holds a mortgage thereon.

Dentist Kills.—Dr. Jeff Williams, a dentist of Nevada, Mo., shot and killed his stepbrother, Vaughn Moore, September 11 in Clinton, Ky., at the home of their parents, Mr. and Mrs. J. C. Moore. There were no eye-witnesses to the tragedy. Neighbors heard three shots fired in rapid succession, and, rushing in. found the lifeless body of Moore on the front porch. Williams sought out the sheriff and gave himself up. Williams says the shooting was in self-defense. The two men were reared together there from boyhood, the mother of Dr. Williams marrying the father of Vaughn. The old folks are now on their deathbed, and this circumstance brought the two men together. Moore was a merchant and is engaged in business at Amory, Miss. He leaves a family.

Removals.—Dr. E. L. Ashton from Traverse City, Mich., to Williamsburg, Va.; Dr. W. A. Giddings from Lanark, Ill., to Kansas City, Mo.; Dr. O. H. Burnett from Elgin, Ill., to New Zealand; Dr. John Eldred from Chicago, Ill., to Carlinville, Ill.; Dr. J. R. Garst from Franklin, Ohio, to Dayton, Ohio; Dr. O. D. Whalley from Kalkaska, Mich., to Kalamazoo, Mich.; Dr. C. W. Percival from Gibbon, Neb., to Plattsmouth, Neb.; Dr. L. R. Eller, from Packwood, Iowa, to Anita, Iowa; Dr. W. E. Vallerchamp from Harrisburg, Pa., to Duncannon, Pa.; Dr. H. S. Srigley from Jacksonville, Ohio, to Athens, Ohio; Dr. Freeman from Gas City, Ind., to Laporte, Ind.; Dr. Earl McClung from Ridgeville, Ind., to Muncie, Ind.; Dr. C. A. Gardner from Ames, Iowa, to Clear Lake, S. D.; Dr. R. L. Barton from Oklahoma City to Juarez; Dr. Perry Coffin from St. Elmo, Ill., to Terre Haute, Ind.; Dr. T. C. Stowell from Coldwater, Mich., to Mishawaka, Ind.; Dr. L. S. Fox from Greensboro, N. C., to Salisburg, N. C.; Dr. N. Matzen from Norfolk, Neb., to Columbus, Neb.; Dr. C. W. Clapp from Ottawa, Ohio, to New Rochelle, N. Y.; Dr. F. E. Yule from Jonesboro, Ind., to Marion, Ind.



828,109. Apparatus for Stamping and Shaping Dental Metal Crowns.—Adolf Grünstein, Budapest, Austria-Hungary. Filed June 2, 1904. Serial No. 210,823. Fig. 7. Claim—A device for forming and shaping dentistry-crowns, consisting of a base-plate, a matrix-plate mounted on said base-plate and having matrices arranged therein near its periphery and an upper stationary plate having orifices of different diameters around its periphery,



a central vertical spindle having a screw-thread thereon and an intermediate plate having an internal thread to engage said spindle and having a series of stamps on its upper surface to engage the orifices of the upper plate and a series of dies on its lower surface to engage the matrices of the lower plate substantially as described.

- 825,891. Dental Engine.—Arthur W. Browne, Prince Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed October 21, 1905. Serial No. 283,830. Fig. 8. Claim.—In a dental engine of the character indicated, the combination of the forearm, the handpiece, the turning connection between the two, and a stop device for preventing unlimited turning of said handpiece about said forearm, but permitting said handpiece to be turned about said forearm in a complete circle, more or less.
- 827,507. Dental Instrument.—Lyter H. Crawford, Philadelphia, Pa. Filed November 18, 1903. Renewed January 6, 1906. Serial No. 294,919. Fig. 9. Claim—The improved surgical instrument for dental use, comprising a handle having a shank and a beak which is formed thereon substantially at a right angle, and tapered to a point and made convex on the side farthest from the shank, substantially as described.
- 827,910. Apparatus for Administering Liquid Anesthetics.—John A. Hollenberger, Hagerstown, Md. Filed February 14, 1905. Serial No. 278,475. Fig. 10. Claim—An apparatus for administering liquid anesthetics comprising a shell, having a mouthpiece and a flexible bag communicating therewith, an anesthetic-receptacle and holder therefor, a flexible tube communicating between said receptacle and the interior of said shell and mouthpiece, and a valve for holding a portion of said flexible tube over the exit end of said receptacle, as set forth.
- 829,997. Manufacture of Plates for Artificial Teeth.—Arthur Ollendorff, Breslau, Germany. Filed February 28, 1905. Serial No. 247,819. Fig. 11. Claim—A method for the manufacture of metallic plates for artificial teeth consisting in producing an impression of the mouth, making from said impression a plaster model, modeling the plate in wax upon said plaster model, embedding the wax model in fireproof material to form a mold, embedding the teeth in the wax model and mold, heating the mold in a furnace by which the wax is completely evaporated and casting the plate in said mold substantially as described.

FOR SALE.

Office and fixtures of late Dr. Wesley Sloan, Peoria, Ill. Been established twenty-five years; modern, up to date. Population, 80,000. Invoice, \$1,200; sell for \$600. Mrs. Emma T. Sloan, 608 Seventh avenue.

FOR RENT.

Office in Masonic Temple. Good opportunity. Address "B. F. F.," care of American Dental Journal.

PARTNER WANTED.

For Chicago; must have had experience in advertising office. Address H, care of American Dental Journal.

FOR SALE.

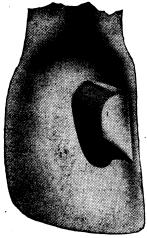
Modern office, with practice, at invoice; best city in Michigan. Invoice and particulars, address C. G. Parker, D. D. S., Mt. Clemens, Mich.

FOR SALE.

Dental office, best furnished in city; good practice started and good location; sell \$500 cash; snap to right party; reason for selling, going to Mexico. Address X, Murdock Dental Depot, Muskogee, I. T.

Dentist, post-graduate '02, perfectly equipped office and laboratory; would like to locate; moving entire outfit to Idaho, Nevada or some good Western state with established *ethical* dentist. Have good practice, but health poor. Address F. A., care of AMERICAN DENTAL JOURNAL.

SPECIALIZE IN DENTISTRY



Commensurate Fees

are only obtainable from the highest class of Dental operations. It is no longer necessary to spend time, money and loss of new business to become familiar with

Porcelain Inlay

Gold Inlay, Porcelain Crown and Bridge work. A perfect understanding of these subjects can be guaranteed you by mail. Do not promise yourself that you will write TOMORROW for full information, BUT DO IT TODAY.

ARTHUR E. PECK, M. D., D. D. S. 403 Medical Block, Minneapolis, Minn.

Peck's Denticulate avoids the use of acids or disks for etching inlays. Price \$1.00.

INDEX TO ADVERTISEMENTS. Page 1	ge
Acestoria	Ιο 49
Adams Mouth Prop.	82
Alfred Ward Chemical Co	46 88
Antidolar Mfg ('o Springville N V	18
Antidolorin	47
Antikamnia Chemical Co., St. Louis	18
	49
Brewster Dental Co., Chicago, Ill.	48
Carpenter Míg. Co., The, Boston, Mass	87
Caulk, The L. D. Co., Philadelphia. Pa25,	88
Chicago College of Dental Surgery, Chicago, Ill.	88
Chicago Dental Laboratory Co	46
Clark, A. C. & Co.,Last Cover Pa	ge 19
Crocker, Samuel A. & Co	40
Caulk, The L. D. Co., Philadelphia. Pa. Century Plate Swager. Chicago College of Dental Surgery, Chicago, Ill. Chicago Dental Laboratory Co. Clark, A. C. & Co., Cleveland Dental Mig. Co., Cleveland, O. Crocker, Samuel A. & Co. Croselmire & Ackor Co., Newark, N. J.	32
De Trey, E. & Sons	er 27
Dental Ad writer, H. Elfers	16
Dental Suction Co.	3 4
Detroit Dental Mfr. Co.	28
Dioxogen. Second Cov Dr. Davis' New Comb. Separator and Matrix, Moulton, La	er
Dr. Davis' New Comb. Separator and Matrix, Moulton, La	39
	46 46
	87
Excel Chemical Co	12
Frink & Young-Sprake Cotton Roll Holder and Shield	
	17 11
	00
Hisey Alvatunder	ĭš
Indiana Dental College, Indianapolis, Ind	87
Janualle Chemical Co	18
	89
	00
Lambert Pharmacal Co., St. Louis	21
Lauderdale Crown System	44
Lavoris	84 80
	86
Longnecker, Ewans & Co., Office Coats	11
	48 F 2
Medico-Chirurgical College	46
Michigan Drug Co. Modeling Composition Monarch Book Co Mounted Carborundum Points.	5
Monarch Book Co	7 48
Nerve Qui-e-tus	28
Nolde Dental Mfg. Co., John T., St. Louis	26
	50
O Dilon Working Committee	47
Peck Correspondence School, Minneapolis, Minn	20 41
Randall-Faichney Co	29
Kepairs	45
Ritter Dental Mfg. Co	14 6
	46
Sanitol Company	1
Sanitube	80
Somnotorme, E. de Trey & Sons, New York	35
State Board Journal, Washington, D. C	įě
Sanitube Somnoforme, E. de Trey & Sons, New York. 60, Spear-Marshall Co., Chicago State Board Journal, Washington, D. C. Steere, Geo., Chicago. Sterion White Alloy Co., Chicago., Ill	18 18
Tenax	87
Tooth Cleaning Mandrels	5
Traun Rubber Co., New York	88
Turner Brass Works Twentieth Century Teeth	59
Unique Engine	4
University of Illinois	16
Waites Anesthetic	49
Wedgelock Tooth Co	₽0 40
Waites Anesthetic. Ward Chemical Co., Alfred. Wedgelock Tooth Co. Williams, J. A. Satisfied. Williams, J. A. Satisfied.	BĚ



Liquid - Powder - Paste - Brush BEST FOR THE TEETH

1